THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

JUNE 13TH, 1876.

Colonel A. LANE FOX, *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of the following member was announced:—Miss GOOLD.

The following list of presents was read, and thanks were voted to the respective donors for the same:—

FOR THE LIBRARY.

From the AUTHOR.—Treatise on Man. 2 vols. By George Harris, LL.D.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXIV. No. 169.

From the AUTHOR.—Report of the U. S. Geological and Geographical Survey of Territories, 1874. By Prof. F. V. Hayden.

From the EDITOR.—Materiaux pour l'Histoire de l'Homme, for May, 1876.

From the ASSOCIATION.—Journal of the East India Association. Vol. IX. No. 4.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, Siebenter Jahrgang.

From the SOCIETY.—Journal of the Royal Geographical Society. Vol. XLV. 1875.

From the AUTHOR.—The History of New Guinea. By Lieut. R. H. Armit, R.N.

From the EDITOR.—Revue Scientifique. Nos. 48, 49, 50. 1876.

From the EDITOR.—Nature (to date).

Professor Busk read the following paper; and skulls, poisoned arrows, and shell and stone implements sent to the President by the late Commodore Goodenough, C.B., were exhibited.

NOTES *on a* COLLECTION *of* SKULLS *from the* ISLANDS *of* MALLICOLLO *and* VANIKORO, *in the* NEW HEBRIDES GROUP. By GEO. BUSK, F.R.S. and V.P.A.I.

THE skulls which form the subject of the present communication, comprise eight from the Island of Mallicollo, and three from that of Vanikoro, both islands belonging to the New Hebrides group. Of the Mallicollese skulls three were presented a short time since to the Royal College of Surgeons, by Dr. A. Corrie, R.N., and the others, together with those from Vanikoro, were sent to the President by the widow of the late lamented Captain Goodenough, by whom they had been procured.

The collection altogether is of especial interest, and more particularly the Mallicollese crania, inasmuch as no specimens from that island have apparently ever before come under scientific inspection, although at the same time the shape of the heads of the inhabitants, from the time of the discovery of the island by Captain Cook, has been known to possess striking peculiarities. It had also, as will afterwards be more particularly noticed, attracted the attention of the illustrious Blumenbach.

The Island of Mallicollo, or Manicollo, is, I believe, the second in size of those constituting the New Hebrides group, and lies in lat. 16°·25 S. and long. 167°·57 E. Of the interior of the island, which is of considerable size and supposed to be very populous, little or nothing is known beyond the circumstance that it is densely wooded. And intercourse with the natives has, from the first, been so difficult and dangerous that but little is known of their manners and customs, nor in that respect has anything of importance been added to what is stated by Captain Cook and the two Forsters, who accompanied him, all of whom appear to have been deeply impressed with the peculiar physical and mental characteristics of the natives. Of these the fullest particulars are given in the account of the younger Forster, and it will be interesting to cite some of the points adverted to by him.

He describes the natives of Mallicollo "as of a blackish brown colour, the hair black, frizzled, and woolly. Their features," he says, "are more extraordinary than all the rest. They had the flat broad nose and projecting cheek-bones of a negro, and a very short forehead which had sometimes an unusual direction, being something more depressed than in well-formed men. Their slender form, their ugly features, and their black colour often provoked us to make an ill-natured comparison between them and monkeys. We should be sorry, however," he goes on to remark, "to supply Rousseau, or the superficial philosophers who re-echo his maxims, with the shadow of an argument in favour of the Orang-outang system."

But notwithstanding this pithecoid aspect, he states that "they were the most intelligent people we had ever met with in the South Seas; they understood our signs and gestures as if they had been long acquainted with them, and in a few minutes taught us a great number of words." Their language was wholly distinct from that general language of which several dialects are spoken in the Society Islands, the Marquesas, the Friendly Isles, the Low Islands, Easter Island, and New Zealand. The most singular sound was a shake or vibration of *brrr* together. Thus," he says, "what they wanted in personal attraction was made up in acuteness of understanding." He notices a fact also which is of some interest on the present occasion, since one of the skulls from Vanikoro is coloured in the same way, viz. that "some of the women covered their heads with the orange powder of turmeric root, and some had daubed their face and others their whole body with the same colour."

Mr. G. Forster also remarks that the natives in some parts of New Guinea and Papua seem to correspond in many particulars with what may be observed among the Mallicollese; and concludes with the observation, which all subsequent voyagers have merely confirmed, "that we chiefly observed two great varieties of people in the South Seas—the one more fair, well limbed, athletic, of fine size, and a kind, benevolent temper; the other blacker, the hair just beginning to become woolly and crisp, the body more slender and low, and their temper, if possible, more brisk, though somewhat mistrustful. The first race," he states, "inhabits Otaheitee and the Society Isles, the Marquesas, the Friendly Isles, Easter Island, and New Zealand, whilst the second peoples New Caledonia, Tanna, and the New Hebrides, especially Mallicollo."

The elder R. Forster, speaking of the natives of Mallicollo, describes them as a small, nimble, slender, black and ill-favoured set of beings, that of all men he ever saw border the nearest upon the tribe of monkeys. Their skulls (meaning, I presume, their heads), he remarks, are of a very singular structure, being from the root of the nose more depressed backwards than in any of the other races of mankind which they had formerly seen. He also notices the harshness of their features and the breadth of the cheek-bones and face, giving the whole countenance a highly disagreeable aspect. He notices the circumstance, also, that some were hairy all over, which was likewise observed in the natives of Tanna and New Caledonia, with whom the Mallicollese agreed in their black colour and woolly hair. He adds the remark, that the depression of the forehead in the latter "may perhaps be artificial."

The above quotations are given mainly for the purpose of

showing that from the first the negrito character of the natives of the New Hebrides was fully recognised, and that among the Melanesian races those of the Mallicollese population were peculiarly distinguished by the form of the head or skull, which was such as in the eyes of a competent observer to lead to the suspicion that it might be due to artificial deformation.

As I have already said, although apparently no skulls from Mallicollo had come into the hands of collectors, their peculiar conformation (or rather that of the living head) was noticed by Blumenbach in the second edition of his work, "De Generis Humani Varietate nativâ," 1781, p. 87, where in speaking of his fifth form of skull (the Malayan), to which he refers that of the South Sea Islanders generally, he adverts to the inhabitants of the Island of Mallicollo as affording an exceptional form, and not, as Dr. Barnard Davis* seems to imply, as typical of his fifth variety of man.

This remarkable peculiarity of form is well shown in the present collection, from which two well-marked specimens have been selected for the purpose of illustration (Plates i. and ii.).

One of the most striking features presented in the Mallicollese skulls, and which is in greater or less degree common to them all, is the extreme flattening or depression of the frontal region, accompanied with a not very strongly marked depression immediately behind the vertex, whilst at the same time there is no flattening in the occipital region. This peculiar deformation can only, I think, be regarded as artificial, as was suspected by R. Forster. It might be effected by a piece of bark or wood being bound on the forehead by a band passing round the back of the head and over the vertex in a figure of eight fashion.

This accords in some respect with what is stated by Dr. B. Davis† with regard to a skull from Noukahiva, one of the Marquesas Islands, "which," he says, "has much the appearance of having been distorted by art, and if so, probably in the mode used by the Caribs of St. Vincent figured by Goss."‡ But I would remark that a considerable difference exists in these two instances in the circumstance that in the Carib skulls, as in the Peruvian, &c., there is evidence of counter-pressure by a flat surface upon the occiput, which is wholly wanting in the Mallicollese skulls.

In further support of the notion that the peculiar frontal

* "On the Peculiar Crania of the Inhabitants of Certain Groups of Islands in the Western Pacific," 1866, p. 1. (Natuur k. Verhandel. v. d. H. Maatsch, d. Wetensk &c. Haarlem. xxiv. Deel.)

† "Thesaur. Cranior," 1867, p. 319.

‡ "Deformations Artificielles du Crâne," Pl. vi. fig. 3.

depression in the Mallicollese cranium is artificial, I would advert to the fact that in those from Vanikoro, an island only a few miles distant, and inhabited, as it would seem, also by a similar Melanesian race, there is no such depression, as will be seen in the figures given of skulls from Vanikoro (Plates iii. and iv.), nor, so far as I am aware, has the same cranial deformation been observed in any other Melanesian race. Nor have I been able to find any reference to the practice of artificial deformation amongst that race elsewhere.*

This feature therefore may be, perhaps, at present regarded as limited to the Island of Mallicollo, which is in itself a very remarkable circumstance.

The other characters of these skulls are more or less common to the Melanesian or Negrito race in general, if we except, perhaps, the Andamanese. Amongst these characters will be remarked (1) the small size of the calvaria or cerebral part as compared with the facial portion of the skull; (2) the great development of the mastoid region, as is particularly shown in the skull R.C.S. No. 5,402 K, Plate ix., which also shows (3) the great prominence of the zygomatic arches and the comparative narrowness of the frontal region; and (4) the intervention of the temporal between the parietal and alisphenoid, which is also shown in No. 5,402 I, Plate x., and in several others of the skulls in the collection, and which, as is well known, is so common a condition in the Tasmanian and Papuan branches of the Melanesian race.

5. In the general preponderance in length of the parietal longitudinal arc over the frontal the New Hebridean skulls are distinguished from the Tasmanian, and agree, so far as my observations extend, with those from New Guinea.

6. In several of these skulls the two median upper incisors have been removed during life, a practice, as is well known, pursued by many and (geographically) very distant branches of the Papuan and Australian races.

Regarding the present collection as affording fair average specimens of the New Hebridean race, if they are compared with other of the lower dolichocephalic races and with the modern European as a point of comparison, it will be observed from the data in Table II—

1. That in *general dimensions* they stand the lowest with the exception of the Veddahs and Andamanese, but are nearly on a par with the Intratropical Negro, Hottentot, and Bushman.

2. That in the *frontal region* they are the most deficient of any except the Bushman, Veddah, and Andamanese, rather

* It is said that the Samoans distort the children's heads, but in what direction they are distorted has not been described.

exceeding the Intratropical Negro, and being equal with the Hottentot.

3. That in the *parietal region* they exceed all the lower races enumerated in the Table, except the Tasmanian. The number representing this region in the European skulls is greater, but if we regard the higher number, by which the "*general dimensions*" of the European skulls are expressed, it will be seen that the parietal region in the New Hebridean is proportionately rather more developed. It would seem that this excess is mainly due to the greater length of the parietal longitudinal arc, or of the sagittal suture, and not so much to lateral expansion of the middle cerebral lobes. And this appears to me one of the most marked characteristics of the New Hebridean crania.

6. In the proportionate dimensions of the occipital region the New Hebridean skulls agree very closely with the Hottentot, Bushman, Australian, Tasmanian, and Intratropical Negro, whilst they exceed the Veddah, and still more considerably the Andamanese, and are much behind the European.

7. The mean cubic contents of the skulls in the present collection are equal to about 76 cub. in. for those from Mallicollo, and about 82 for those from Vanikoro; one of the latter, however, contains 85 cub. in., and the other, that of a young female, only 79. And as among those from Mallicollo, two contain 78 cub. in., and one 80 cub. in., the cubic capacity of the male skull might probably be regarded, on the mean, as about 78 or 79 cub. in. In Dr. B. Davis's Tables the mean capacity of New Hebridean crania, exclusive of Mallicollo, appears to be about 83 cub. in.

With respect to other peculiarities of these skulls I would remark:

1. On the great altitudinal index presented by those from Vanikoro, in one of which it is as much as .844, and in the other two, .802-.826, or on the mean about .823, which is a higher figure than I have obtained from skulls of any other race, not even excluding those of the brachycephalic type. The comparative value of this character will be seen in the last line in Table II.

Taking the whole present collection, the mean altitudinal index is about .773, and this is very nearly the same as that assigned to the New Hebridean and New Caledonian skulls taken together by Dr. Barnard Davis. As the latitudinal index is .709, the difference between the two is 64. In the other races enumerated in the Table the difference varies from 17 and 20 in the Bushman and Tasmanian, to as much as 83 in the Veddahs. But in the skulls from Vanikoro the difference rises to 115, and taking the entire collection of New Hebridean skulls it is 64. From the data afforded in Dr. Barnard Davis's "Thesaurus," the difference in the case of New Cale-

donian skulls appears to be about 90, and 50 in those from the New Hebrides group.

It would appear, therefore, that among the Melanesian race of the New Hebrides and New Caledonia, in many cases the skull presents an unusually high altitudinal index.

This is quite in accordance with Dr. B. Davis's observations with respect to the great prevalence among the natives of the Solomon Islands, New Caledonia, the Loyalty Islands, the New Hebrides, and the Feejees, of long, narrow, and high calvariæ, and "by which," as he says, "they are decidedly and distinctly characterised." To this form of skull he has applied the term *hypsi-stenocephalic*, which is perhaps also equally applicable to the skulls of the Veddahs, so far as I am acquainted with them.

2. With respect to the degree of prognathism in the New Hebridean skull, as shown by the "gnathic index," it would seem that though considerable, more especially in one of the Vanikoro skulls (a young female), still, upon the whole, it is less marked in the New Hebrideans than in either the Australian or Tasmanian, though rather greater than in the Hottentot or Bushman; and very much more so than in the Veddah and Andamanese, being about the same as in the Intratropical Negro.

3. Another striking feature of these skulls is the great expansion of the zygomatic arches. They appear to me to be the most decidedly phænozygous of all skulls that I am acquainted with.

Subjoined are Tables showing—

I. The various measurements of the New Hebridean skulls in the possession of the Royal College of Surgeons, and those sent by Commodore Goodenough, most of which have been liberally presented by our President to the College; and

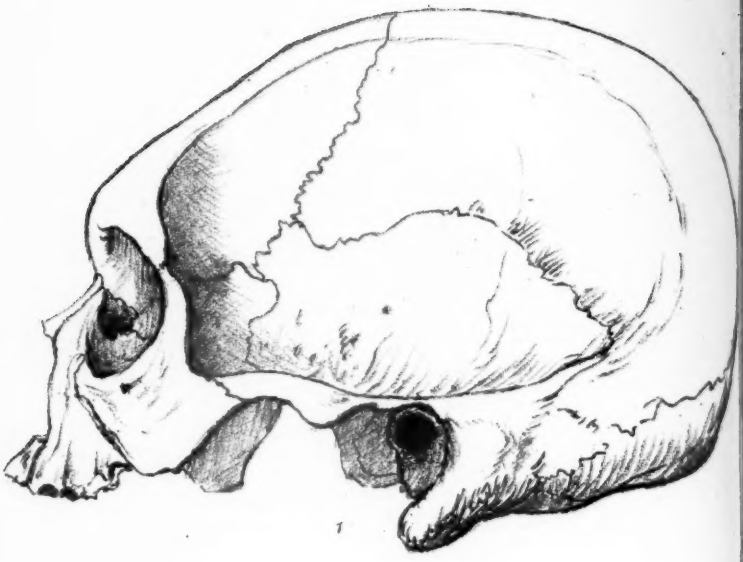
II. A table showing the general dimensions, together with those of the three regions of the skull, with the cubic contents and various indices of the crania of most of the lower races of man, contrasted with the average modern European.

The numbers in the first four lines of this Table are merely comparative, and are not intended to indicate any absolute values. In order to render them intelligible to those who may not have noticed what I have said elsewhere, I may briefly explain that the figures in each of these lines are obtained simply by adding together the respective dimensions under each head in Table I.

Thus, for instance, the numbers in the line headed "General dimensions" represent the sum of the mean *length*, *breadth*, *height*, and *circumference* of the skulls in each column, whilst those representing the different regions are made up by adding together all the numbers relating to that region, as they appear

I.—Table of Dimensions, &c., of Eleven New Hebridean Skulls.

		Malicollo, C.S. 1. ♀ ?	Malicollo, C.S. 2. [5402 I.]	Malicollo, C. 3.	Malicollo, F. 4. [5402 O.]	Malicollo, F. 5.	Malicollo, F. 6.	Malicollo, F. 7.	Malicollo, F. 8.	Vanikoro, F. 1.	Vanikoro, F. 2. ♀	Vanikoro, F. 3. [5402 K.]
1	Length	7.1	7.0	7.3	7.4	7.1	7.0	7.5	6.9	7.1	6.75	6.9
2	Breadth	4.95	5.2	5.1	5.4	5.15	5.0	5.1	4.7	5.0	4.8	4.9
3	Height	5.3	5.0	5.6	5.6	5.5	5.4	5.7	5.2	5.7	5.7	5.7
4	Least frontal width ...	3.9	3.7	3.6	3.7	3.8	4.1	3.9	3.6	3.9	3.6	3.7
5	Greatest „ „ ...	4.2	4.1	4.2	4.3	4.5	4.6	4.6	4.0	4.3	4.3	4.3
6	Parietal width ...	4.7	4.75	4.5	4.8	4.9	4.6	4.8	4.5	4.8	4.8	4.7
7	Occipital „ ...	4.4	4.25	4.3	4.4	4.1	4.4	4.1	4.1	4.5	4.2	4.0
8	Zygomatic „ ...	5.0	5.2	5.0	5.4	5.2	—	—	4.7	5.1	4.6	5.3
9	Frontal radius ...	4.1	3.8	4.0	4.3	4.3	4.3	4.8	4.0	4.6	4.4	4.7
10	Vertical radius ...	4.5	4.3	4.4	4.75	4.6	4.5	4.8	4.3	4.75	4.6	4.8
11	Parietal radius ...	5.0	4.8	4.8	5.2	5.0	4.8	5.1	4.8	4.9	4.8	4.8
12	Occipital radius ...	4.3	4.3	4.2	4.5	4.3	4.0	4.2	4.2	4.0	4.0	3.8
13	Maxillary radius ...	4.0	3.8	4.1	4.2	4.1	4.0	4.3	4.0	4.5	4.1	4.1
14	Fronto-nasal ...	3.4	3.5	3.5	3.5	3.7	3.5	3.9	3.6	3.65	3.5	3.7
15	Circumference ...	19.3	19.75	20.0	20.0	19.9	19.8	20.5	19.0	19.9	19.2	19.2
16	Longitudinal arc ...	14.0	13.9	15.0	15.4	14.7	14.7	15.4	14.1	14.8	14.6	14.9
17	Frontal „ ...	4.9	4.6	4.6	5.0	4.9	4.9	5.5	4.5	4.7	5.0	5.0
18	Parietal „ ...	4.8	5.1	6.1	5.8	5.2	5.2	5.6	5.3	5.6	5.0	5.4
19	Occipital „ ...	4.3	4.2	4.3	4.6	4.6	4.6	4.3	4.3	4.5	5.0	4.5
20	Frontal transverse arc..	10.9	10.6	10.8	11.5	11.8	11.8	12.3	10.8	11.8	11.6	12.2
21	Vertical „ „ ...	12.0	11.5	11.7	12.5	12.2	12.2	12.7	11.3	12.4	12.2	12.6
22	Parietal „ „ ...	13.1	12.8	12.8	13.5	12.8	12.8	13.3	12.6	13.0	12.8	13.0
23	Occipital „ „ ...	12.0	11.3	11.0	12.0	11.0	11.0	11.0	10.7	11.0	11.0	10.8
24	Latitudinal index ...	.695	.742	.698	.729	.725	.714	.680	.681	.704	.711	.710
25	Altitudinal „ ...	.746	.714	.767	.756	.774	.771	.760	.752	.802	.844	.826
26	Gnathic „ ...	.60	.30	.60	.70	.40	.50	.40	.40	.85	.60	.40
27	Contents ... cub. in.	78.	73.	78.	80.	—	75.	—	72.	85.	79.	—



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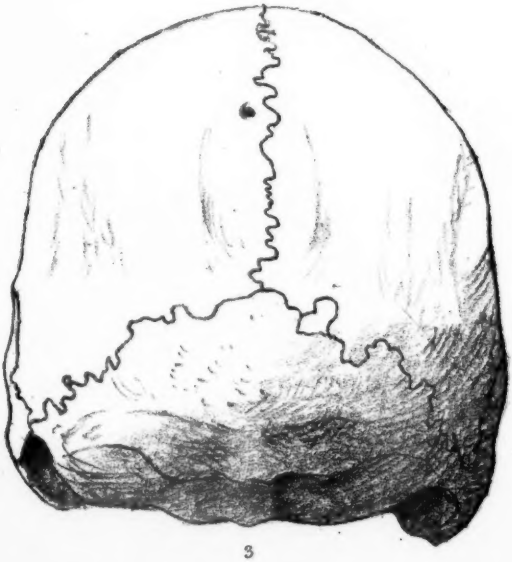

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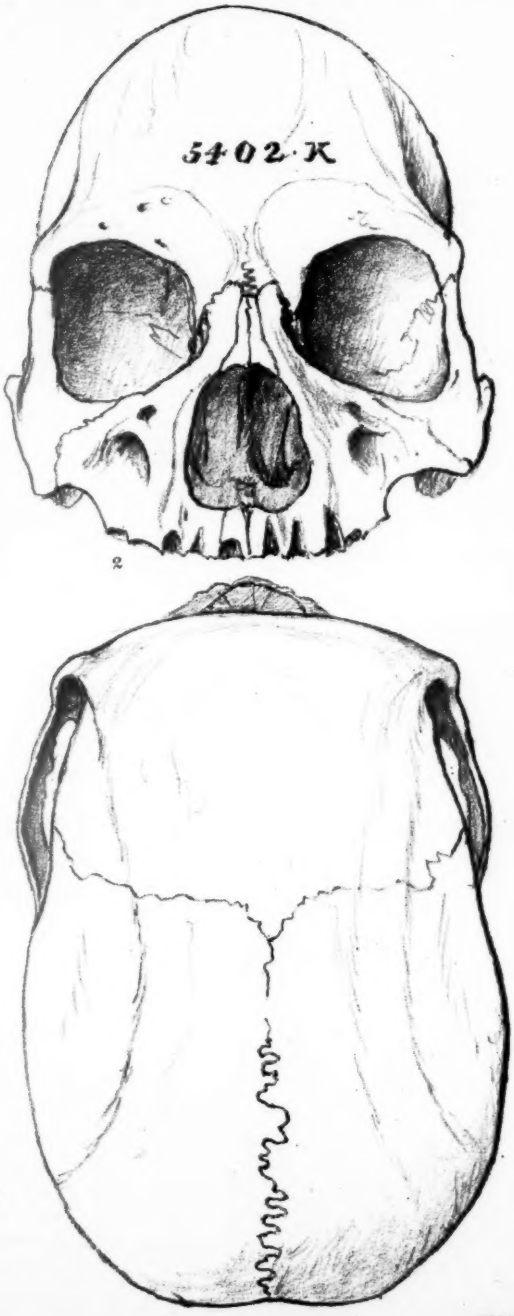
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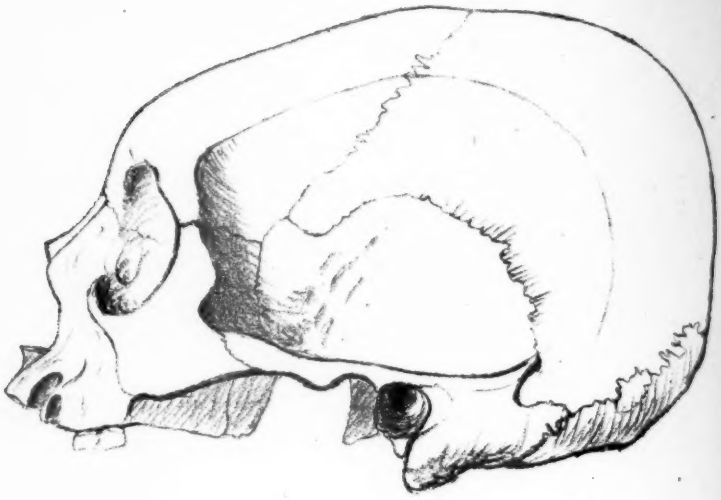

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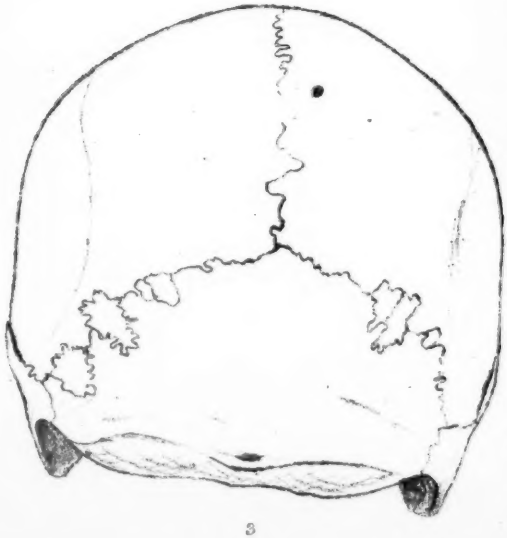

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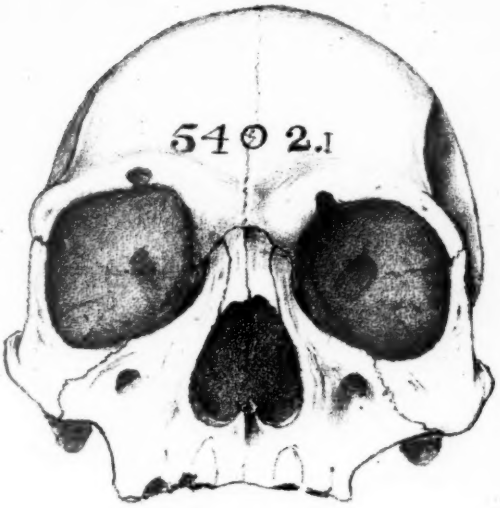

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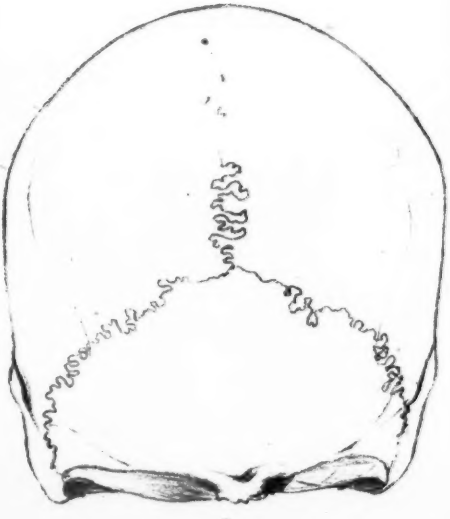

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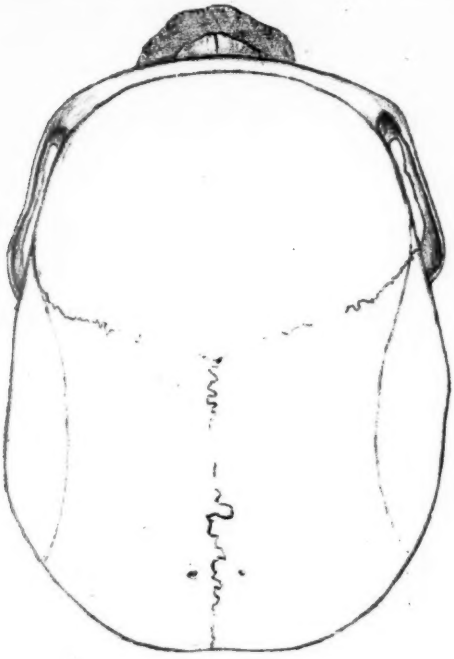

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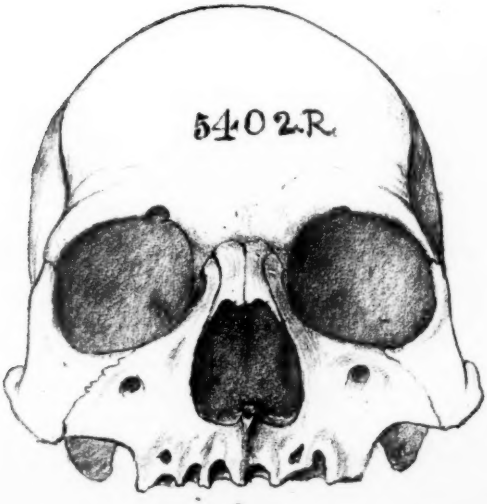

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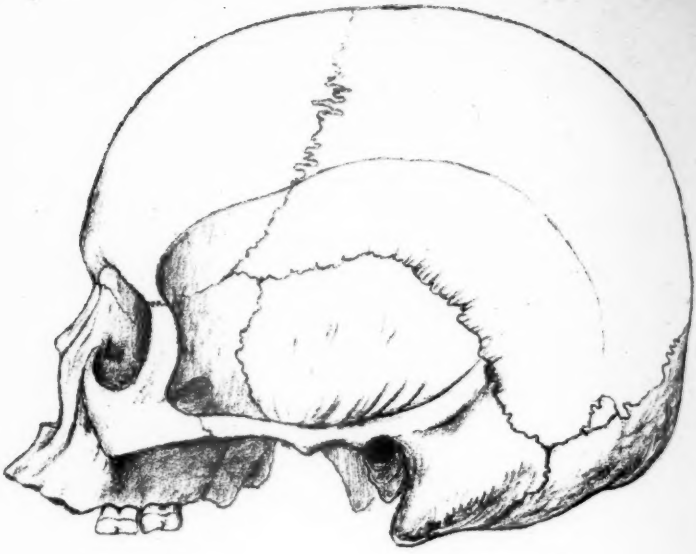

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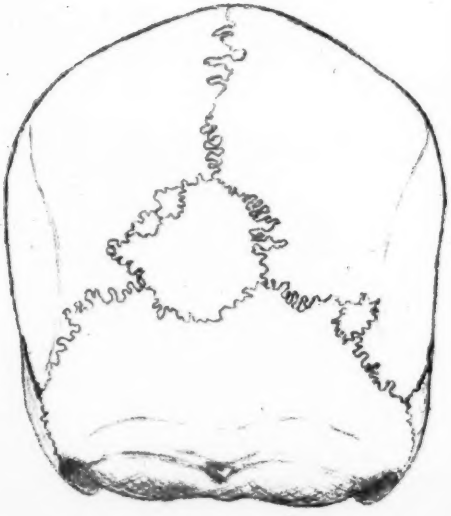

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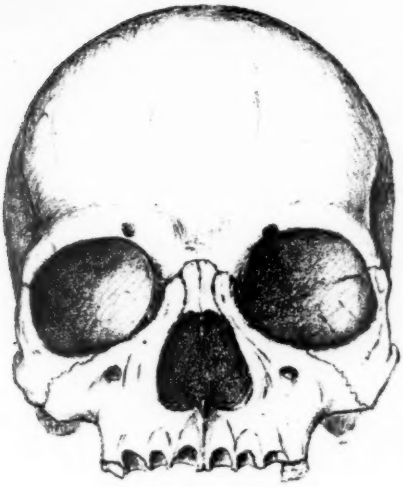

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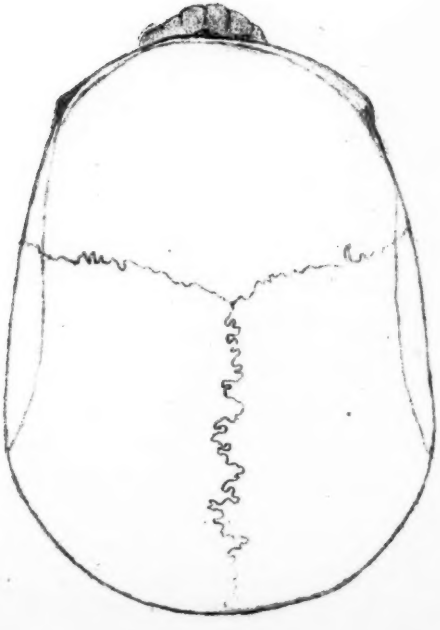

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in the Table. For instance, with respect to the frontal region, I add together the *least frontal width*, the *greatest frontal width*, the *frontal radius*, and the *frontal transverse* and *longitudinal arcs*; and so of the rest.

The *gnathic index* represents the difference in length between the *maxillary* and *fronto-nasal radii*, which in a perfectly orthognathous skull are exactly the same.

II.—Table showing the Comparative Dimensions, &c., of Various Dolichocephalic Skulls.

		European—dolichocephalic.	Intratropical Negro.	Hottentot.	Bushman.	Veddah.	Andamanese—brachycephalic.	Australian.	Tasmanian.	Polynesian. B.D.	Vanikoro.	Mallicollese.	New Hebrides. G.B.	New Hebrides. B.D.	New Caledonian B.D.
1	Genl. dimensions..	.385	.372	.375	.374	.355	.356	.375	.383	.382*	.369	.370	.369	.375*	—
2	Frontal region	.477	.455	.461	.457	.447	.442	.461	.472	—	.464	.461	.460	—	—
3	Parietal „	.285	.268	.275	.275	.263	.273	.267	.283	—	.279	.279	·279	—	—
4	Occipital „	.248	.234	.238	.241	.229	.227	.235	.242	—	.234	.241	.240	—	—
5	Cubic contents ...	92*	87*	80*	77*	—	—	81*	82*	88*	82	76	77	83*	89*
6	Latitudinal index..	.742	.721	.745	.759	.718	.812	.706 (1)	.756 (2)	.773*	.708	.710	.709	.720*	.700*
7	Altitudinal „	.775	.765	.783	.742	.801	.821	.761 (3)	·736 (4)	.793	.823	.755	.773	.770*	.790*
8	Gnathic „ ...	.20	.56	.41	.42	.22	.38	.70	.60	—	.68	.50	—	—	—
9	Difference between altitudinal and latitudinal indices ...	33+	44+	38+	17÷	83+	9+	55+	20÷	20+	115+	45+	64+	50+	90+

(1) .710—B.D. (2) .73)—B.D. (3) .743—B.D. (4) .743—B.D.

* The numbers with asterisk as taken from data afforded in Dr. B. Davis's "Thesaurus."

Description of Plates.*

Plate IX.—Skull from Mallicollo, in the collection of the Royal College of Surgeons.

Fig. 1.—Norma lateralis.
Fig. 2.— „ facialis.
Fig. 3.— „ occipitalis.
Fig. 4.— „ verticalis.

Plate X.—Skull from Mallicollo, in the collection of the Royal College of Surgeons.

Fig. 1.—Norma lateralis.
Fig. 2.— „ facialis.

* These four plates have been kindly contributed by Prof. Busk.

Fig. 3.—Norma occipitalis.
Fig. 4.— „ verticalis.

Plate XI.—Skull from Mallicollo, in the collection of the Royal College of Surgeons.

Fig. 1.—Norma lateralis.
Fig. 2.— „ facialis.
Fig. 3.— „ occipitalis.
Fig. 4.— „ verticalis.

Plate XII.—Skull of young female, which is coloured with turmeric, from Vanikoro.

Fig. 1.—Norma lateralis.
Fig. 2.— „ facialis.
Fig. 3.— „ occipitalis.
Fig. 4.— „ verticalis.

All the figures are half the natural size.

DISCUSSION.

Mr. WOOD said: Professor Busk in the course of his lecture, when remarking on the apparently artificially deformed skulls from Mallicollo, stated that these were the only instances among the South Sea Islanders of skulls so deformed. In the course of my last voyage in the South Seas, in the year 1873, I visited "Futuna," or Hoorne Islands, situated in lat. 14.14 S. long. 178.7 west. While yet at some distance from the island, several canoe loads of natives boarded me, and I at once noticed the extraordinary flatness of the backs of their heads. During my stay at the island I called the attention of one of their chiefs to this fact, who informed me that it was their custom to place a heavy roll of "tappa," or native cloth, on the heads of the young children, with the object of giving their heads a high and shallow shape, which is considered to be ornamental. I now beg to exhibit a very bad photograph of these natives, taken under considerable difficulties. Still, the centre figure and that on the right of the picture will, to some extent, illustrate what I wish to explain. After leaving Futuna I visited Wallis's Island, or Uvea, situated in lat. 13.23 S. 176.11 west, and found that the same practice was in vogue there. I may add that my servant, a native of Rotumah, who is with me here, assures me that the Tongans also practise this, and from the appearance of the Tongans' heads I do not doubt it. In support of my statements I will quote Ellis's "Polynesian Researches," vol. ii. p. 15—"The facial angle is frequently as perpendicular as in the European structure, excepting when the frontal and the occipital bones of the skull were pressed together in infancy. This was frequently done by the mothers with the male children when they were designed for warriors" (Tahiti). I will also quote Marsden's "History of Sumatra," pp. 38, 39—"The women have the preposterous custom of flattening the noses and compressing the heads of children newly born, whilst the skull is yet cartilaginous. . . . Captain Cook takes notice of a similar operation at the Island of Ulietea."

The President, Mr. Park Harrison, and others took part in the discussion.

Mr. Distant exhibited some Photographs of the natives of the Nicobar Islands, and made some remarks thereon, and has since communicated the following note on the bibliography of these islands:

Our Present Knowledge *of the* Nicobarians.

The exhibition of photographs which I am enabled to make through the kindness of Mr. Raphael Meldola, were taken during the time that the "British Eclipse Expedition" remained at the island of Camorta, one of the Nicobar group. They are, I believe, the first that have ever been taken of these little known people,* and I trust that the Council will decide to reproduce one of the most interesting of the series in the pages of our Journal. Before making any further remarks, I have thought it might perhaps be aiding anthropologists to give a reference to all *original* authorities *known to myself*, who have visited and described these people; and as the precise ethnological affinity of the Nicobarians is still undefined, I have considered that the nature of their environment cannot but be taken into consideration, thinking it probable that this matter will be more studied by anthropologists in the future.

Geology.

Hochstetter, Dr., "Reise Novara."

Stoliczka, Dr. (abstract of above), "Stray Feathers," vol. ii. p. 36. Fuller translation of same, "Rec. Geo. Sur. India," vol. ii. p. 3.

Rink, "Die Nikobarischen Inseln." (Copenhagen, 1847.)

Ball, V., "Journ. Asiatic Soc., Bengal," vol. xxxix. p. 25.

De Roëpstorff, F. A., "Geographical Mag.," vol. ii. p. 44.

Great Nicobar, Little Nicobar, and Katchall are of coral formation; the other islands are of volcanic origin, and covered with "polycistine" clay. Mon. de Roëpstorff describes this clay as full of minute shells, and in digging a well, sharks' teeth and whale bones were found in the clay, 28½ feet under the surface of a hill.

Climate and Meteorology.

Rink, "Die Nikobarischen Inseln." (Copenhagen, 1847.)

Blandford, H. F., "Stray Feathers," vol. ii. p. 32.

De Roëpstorff, F. A., "Geographical Mag.," vol. ii. p. 44.

The temperature is very uniform, and averages 28° centi-

* Dr. Vogel took some at the same time, which, he stated, were for exhibition before the German Anthropological Society.

grade. Rainfall above 100 inches, but varies very much in different years. The climate is malarious and enervating.

Botany.

Kurz, L., "Stray Feathers," vol. ii. p. 34.
Ibid., "Journal of Botany" (new ser.), vol. iv. p. 321.
Diedrichsen, Ibid., vol. ii. p. 1.

The principal botanical peculiarities appear to be that the climbing bamboo (*Dinochloa Andamanica*) is on these islands as common as on the Andamans, but other erect bamboos are conspicuous by their absence. The most anomalous fact is the total absence of *Dipterocarps*, which stands in as great contrast with the flora of the Andamans and the surrounding countries, as the absence of *Cupuliferæ* from the Nicobars and Andamans, jointly in comparison with Burma, Malacca, &c. Mr. Kurz thinks that the flora will be found to resemble that of Sumatra.

Zoology.

Blyth, E., "Journal Asiatic Soc. Bengal," vol. xv. p. 367.
Ball, V., "Stray Feathers," vol. i. p. 51.
Hume, A. O., "Stray Feathers," vol. ii. p. 29.
Stoliczka, Dr., "Journ. Asiatic Soc. Bengal," vol. xxxix. p. 134.

Mr. Blyth found the peculiarity of the vertebrate fauna in the paucity of terrene species, whilst a large proportion of such as did occur were apparently peculiar to the locality.

Mr. Ball considers the Nicobarian avi-fauna to have a Malayan facies, whilst that of the Andamans is decidedly Indian.

On none of the islands are found deadly poisonous snakes, except on Teressa (De Roëpstorff). The almost total want of *Colubridæ* on the Nicobars is remarkable (Stoliczka).

Philology.

Rosen, "Erindringer fra mit Ophold paa de Nikobarske Öer Kjóbenhavn." (Copenhagen, 1839.)
Crawfurd, "Gram. and Dict. Malay Lan.," vol. i. p. 130.
Man, E. H., "Journ. Asiatic Soc. Bengal," vol. xli. p. 1.
De Roëpstorff, F. A., "Vocabulary of Dialects spoken in Nicobar and Andaman Isles," 2nd edit. (Calcutta, 1875.)
Fontana, N., "Asiatic Researches," vol. iii. p. 149.

Crawfurd considered the language of the Nicobarians to be a wholly distinct tongue from Malay, Javanese, or indeed any other language of the "brown complexioned race" of the Archipelago, and that it contained a strong Portuguese element. Mon. de Roëpstorff has now given such a copious vocabulary, as spoken in some of the different islands and at the Andamans, that philologists will have a better opportunity of forming conclusions than Crawfurd possessed with the scanty material that was then alone obtainable.

General Subject.

Dampier, "Voyages and Adventures."

Hamilton, "Pinkerton's Voyages and Travels," vol. viii. p. 430.

Hamilton, G. (communicated by Mr. Zoffany,) "Asiatic Researches," vol. ii. p. 337.

Fontana, N., "Asiatic Researches," vol. iii. p. 149.

Weisbach, Dr. A., "Reise Novara," 'Anthrop theil,' p. 51.

Scherzer, "Narrative of the Circumnavigation of the Globe by the Novara," vol. i. p. 481.

Atkinson, "Journal Ethnological Soc.," vol. ii. (new series), p. 137.

Rosen, "Erindringer fra mit Ophold paa de Nikobarske Öer Kjóbenhavn." (Copenhagen, 1839.)

De Roëpstorff, "Vocabulary and Dialects spoken in the Nicobar and Andaman Isles, with short account of the Natives, &c." 2nd edit. (Calcutta, 1875.)

De Roëpstorff, "Geographical Mag.," vol. ii. p. 44.

Distant, "Journ. Anthro. Instit.," vol. iii. p. 2.

Haensel, "Letters on the Nicobar Islands." (London, 1812.)

Halksworth, "Narrative of Visit to Car Nicobar." (Rangoon Miss. Press.) (Printed for private circulation.)

Hume, A. O., "Stray Feathers," vol. ii. p. 29.

Steen, Bille, "Bericht über die Reise der Galathea," 1852.

I have little more to say respecting these people than I have detailed in a previous paper to the Institute, more especially as since I made that communication the subject has been so ably and exhaustively treated by Mon. de Roëpstorff.

The first account of these islands is met with in some early Sanskrit Geographical Tracts. "In the countries of Chattala, and Barmánaca, Rama-chandra began his first bridge, in his intended expedition against Rávanna. The abutment took up the whole of these countries; and the Rama-chandra carried on his works directly towards Subela or Sumatra, and had nearly reached that island, when by the advice of Vibbishan, king of that country, he left off and began another bridge at Rámeswara in the south of India. Of the former bridge, seven piers are still to be seen, which form the Archipelago of the Andaman and Nicobar Islands, exhibiting vast ruins, consisting of all the rocks which surround them. The Hindus fancy that all ledges of rocks, and all islands placed in a line, are the remains of bridges, made either by the gods, or by the devils for some particular purpose."* It is only of the northern islands that we have any reliable information, and the interior of the Great Nicobar is still a "terra incognita." There are clearly

* Wilford, Col., "Asiat. Researches," vol. xiv. p. 453.

two, if not three races inhabiting these islands, one of which the photographs illustrate, whilst another is principally known by tradition to inhabit the interior of the Great Nicobar. These people have been described as living like beasts, or rather as worse, in fact, a description of a Great Nicobarian reads as veritably that of a true "homo sylvaticus." There has been no doubt great exaggeration, in the same way as the Andamanese were imagined before they were visited by trustworthy observers. It is of these people that Marco Polo probably speaks. "When you leave the island of Java (the less) and the kingdom of Lambri, you sail north about 150 miles, and then you come to two islands, one of which is called Necuveran. In this island they have no king or chief, but live like beasts. And I tell you they go all naked, both men and women, and do not use the slightest covering of any kind. They are idolaters."* I think there is little doubt that these people are Negritos belonging to Professor Huxley's Negroid type, having their probably close relations in the Andamanese, and the Semangs or Jacoons of the Malayan Peninsula. They are called Shobœngs, and Mon. de Roëpstorff has lately seen a youth described as being of that race, whom he considered as belonging to the Mongolian type, but he, however, puts the proviso, "if the youth was a fair specimen of his race."

The same author refers to the "Tatat" people from Schowra, whom he pronounces to have a strong Mongolian element, differing in this respect from the men of Trinkut, Nancoury, Camorta, Katchall, and Car Nicobar, and he expresses the interest which will attach to the discovery whether these "Tatats" have anything in common with their cousins in the interior of the Great Nicobar.

I have previously described the happy condition of the inhabitants of Car Nicobar, their honesty and general morality, and I have been pleased to find since, that Dampier, who visited these islands in 1688, described them as honest, civil, harmless people, not addicted to quarrelling, theft, or murder, "that they marry, or at least live as man and wife, one man with one woman, never changing till death made the separation," and that they were punctual and honest in fulfilling their bargains.

The only change in custom I can discern is in the dress of the women. Mr. Hamilton (by Mr. Zoffany), in the paper to which I have referred, described the women of Car Nicobar, in the year 1790, as wearing a short petticoat made of a sort of rush or dry grass, not interwoven, but hanging something like the thatch of a house, evidently in the manner we see round the loins of one of the wooden figures as shown in some of the

* "Travels of Marco Polo," translated by Col. Tule, vol. ii. p. 248.

photographs. But even then, such as had received presents of cloth petticoats from the ships used them instead of the rushes, and commonly tied them under the arms. This is now a rule, and the rush petticoat is a thing of the past. The recorded progress of two hundred years seems, therefore, to be represented by a cloth petticoat.

Pottery is made at the Island of Schowra, and we learn from Mr. Fontana that at one of the islands, some of the natives having began to fabricate earthen pots, soon after died, and the cause being attributed to this employment, it has never been resumed, and they now go 15 or 20 leagues to provide them rather than expose themselves to so dangerous an undertaking. We thus see a people with the use of a rude pottery which they do not make themselves, and this from no inability, but simply from superstition. It would be interesting to know how often superstitious ideas of this kind have prevented a people from progressing in the commonest arts of life, and we must perhaps be careful in not always ascribing the absence of a common and useful fabrication to an arrested development, or a feeble progression.

The wooden figures of which previous mention has been made, and of which Mr. Atkinson treated in his paper, to which I have referred, generally, as Mr. Franks pointed out to me, resemble a Buddha. This is not, however, invariably the case, as one of the figures in the Christy Collection proves. They have probably been either acquired from some of the vessels which visit them, or copied from those originals. At first the result of the Nicobarian propensity for imitation, they have also had some mysterious value as being religious emblems of the people who possessed them. This seems to have sunk into a sort of Fetish, as Mr. Meldola tells me that he knew a man who always took one of these figures in his dwelling at evening, saying that if he did not do so, fever would ensue. Mr. Hume tells us that they also look upon the great robber-crab "Birgus latro"? as a sort of devil, and, though it plunders their cocoanut trees, will not meddle with it, as by so doing they would bring fever and death into their homes. I was told myself, when endeavouring to shoot a large lizard at Car Nicobar, that I should bring disease and trouble on myself. I was also told that the only remains of missionary effort was a solitary bible in the possession of one man, who used it for a pillow, and called it by the name of the Great Originator of Christianity. There is little doubt that in time this book, from at first being looked upon as some great cabalistic work of the white man, would eventually have some mysterious value attached to it and be also regarded as Fetish.

Mr. Fontana, who visited the islands in 1788, spoke of the general want of longevity. He saw no men older than 40 or 48 years, whilst the women, on the contrary, seemed to live much longer. It is curious to note in the photographs I now exhibit the absence of any aged men.

The following, communicated by Mr. Franks, was then read, and the photographs referred to were exhibited:

The distinguished traveller, Signor S. M. D'Albertis, whose acquaintance I had the pleasure of making when he was last in England, has been good enough to send me some photographs from Sydney, which I beg to exhibit to the Institute. One of these is a portrait of a chief of the village of Katau, who served as an interpreter during the visit of the Ellengowan to the Fly River. He has also sent me the following account of his travels from a Sydney paper, and informs me that the Governor of New South Wales has placed a steam launch at his disposal to explore New Guinea. I hope, therefore, that we may look for important results from Signor D'Albertis' further explorations:—

"The excellent accounts published of the visit to the Fly River in the Ellengowan by Mr. MacFarlane and Mr. Chester leaves, as far as regards the descriptive appearance of the country, little for me to write upon. I therefore shall confine my remarks principally to the natives and animal life seen by the expedition, as far as my limited time would enable me to observe. I will give my own impressions, leaving to future travellers, who may have more time, the opportunity of adding to and completing with probably greater accuracy the observations I made. I will now relate my observations on the natives of Katau, a village situated at the entrance of a small river or creek at New Guinea, almost opposite to Cape York. The object of our calling at this village was for the purpose of obtaining the company of an old chief, Maino, who was to act both as interpreter and pilot during our proposed visit to the Fly River.

We landed at the village in the afternoon of the 2nd December. It was composed of four large houses only; these habitations are remarkable for their great length, and each has accommodation for a number of married people. The houses are built on piles, and the floor is upwards of ten feet from the ground, and not far distant from high water mark. The houses have two frontages, and two entrances, opening upon a small verandah, where the natives are in the habit of sitting or employing themselves in various occupations or in conversation. Two wooden ladders communicate with the verandah, and are

in make superior to any I had seen before in New Guinea. The people, houses, and village are kept in a very dirty state, and the interior of the habitations were also in a similar condition, and from there not being any other openings to these extensive houses than those before mentioned, and from being in a smoked and dingy state, a visitor entering them would have to get his eyes accustomed to the darkness before he would be capable of distinguishing the objects or persons inside. Many families inhabit these houses, and to each family there belongs a small compartment where they cook and sleep. These houses resemble those used by the inhabitants of the north-western part of New Guinea, and the resemblance is still more striking to the traveller when he observes a trophy of skulls suspended near the entrance.

About forty men came to meet us on the beach, and at the same time the verandahs of the houses were crowded by women and young people. None of the men approached us armed, but we soon afterwards discovered that they had bows and arrows placed behind a house ready for any event that might happen. I certainly cannot see any harm in their taking these precautions, as it is very probable they have found out by experience that white people are not always to be trusted; still I do not consider they would keep only on the defensive position if they knew that anything was to be gained by taking the offensive. As soon as they saw that we had discovered their concealed weapons, they removed them in great haste to some other place. Some of the carved ones attracted our attention, and we were desirous of purchasing some of them, but they refused to sell any. In spite of their diffidence and reserve we remained several hours on shore visiting the houses, gardens, and the burial ground.

The plantations were all well fenced, and yams, taro, and bananas were under cultivation, and cocoanut palms were also abundant. The burial place was situated a short distance from the village, and close to the beach. We observed on the graves a quantity of provisions placed, consisting of bananas, cocoanuts, and also an old bow and some arrows. A strong fence had been erected round the graves, to protect them from any intrusion. The cocoanuts were empty, but the bananas were left untouched, most probably because as yet they were not sufficiently ripe. I may remark that the natives far West also adopt the custom of placing provisions and arms on the graves of the dead. When mourning for the dead, they paint the whole of the body of a white or yellow colour; whilst in the East of New Guinea the natives for a similar event paint themselves with black. At this place some peculiar adornments are

adopted by the women, in addition to the painting, consisting of an ornament made of fringed strings of grass or fibre, which they wear over the arms and legs below the knee, and a little above the ankle; but what imparts to the mourning women a remarkable appearance is a strange dress worn by them on this occasion, made of a bundle of small ropes, through which the head is passed, and extending over the body to the knee, and then fastened by a cord round the waist.

I observed that the natives used wooden pillows when sleeping, which were generally formed from a portion of the root of a mangrove tree, and cut so as to stand upon four legs. Among some of the pillows I observed one made in the shape of an iguana lizard, the head and tail of which were rudely carved; another was formed like a human head attached to the body of a reptile, and bearing some resemblance to a sphinx. The food of the natives appeared to consist principally of yams, sago, taro, cocoanuts, and an abundance of fish and turtle. The women wear a scanty covering, but the men are entirely naked.

The men are tall, of spare habit, with long arms and legs, but the body short. Among the women I saw many who were tall, with not very prepossessing features, but appeared to have great muscular power. The colour of their skin is generally of a dark copper colour, but I did not observe any so black as the natives of Cape York or of those of Tawan or Cornwallis Island. Their hair is frizzled and woolly, and often short. I examined some whose heads had been shaved, and perceived that the hairs are equally distributed over the scalp, and do not grow in tufts, but as soon as the hair commences to grow it assumes that peculiar tufted appearance which would readily deceive a superficial observer.

It would be difficult to decide which type predominates among them, so many are the individual varieties. I have seen some closely resembling the natives of Cape York, others similar to the Arabian race, and I consider it probable that there is also a mixture of the Papuan race among them inhabiting the western part of New Guinea; and I am more decided in my opinion when I observe not only their physical features, but I also consider that the natives of Katau resemble the Western people in the mode of constructing their houses, using the bow and arrows in preference to the spear; they have also two skin diseases peculiar to those people, named by them "Bento" and "Cascado." Also, like the Western people, they maintain the practice of hunting for heads, preserve the skulls of their enemies, and keep them suspended in their houses. They also adopt the same custom of preserving the lower jaw separate from the skull, and ornamented similarly to that which I have seen

done by the natives of Orangerie Bay, on the south-east coast. I could not, however, ascertain if they use the lower jaw as an armlet similar to that people. If this could be proved, my opinion would be strengthened that the Katau race have intermixed with the Eastern people.

In a few of the islands in Torres Straits there resides a peculiar variety of the so-called Papuan race, distinct from the inhabitants of other islands in the Straits. The largest island inhabited by the peculiar variety I have alluded to is Darnley Island. Many of the people of Katau have similar physical characters; so I consider it would be a task of some difficulty to discover the original type, for it has evidently been destroyed by the intercourse with other races.

Among the boys I did not observe such protuberant abdomens as is usually observed among these races. The boys appear to be more numerous than the girls, but probably the latter, being more timid, did not like to appear before strangers.

On the 7th of December we were at anchor opposite to a large village on Kiwai Island, about twenty-five miles from the entrance of the Fly River. The inhabitants of this village are on amicable terms with those of Katau, from which village two canoes had followed us by another route, arriving the day previous, and informing the natives of our intention to visit them. Many canoes came out to us from the village; they are very long, with a single outrigger, light, and only supported by two arms. Several of the natives came in them to trade, bringing cocoanuts, bananas, yams, and mangoes. There were no women or children with them. They were all perfectly naked, but were ornamented with armlets and belts made of grass or rattan. They have, similar to the natives of Katau and other islands in Torres Straits, the helix of the ear pierced, and the lobes artificially elongated, and also perforated, and decorated as well as the helix with tufts of ornaments, made of grass and dyed of a red colour. I saw some of them who had the lobes of the ear extending to two inches in length. They were not armed, but their weapons are bows and arrows; they have also knives and tomahawks of iron, which they procure from the natives of Katau, and also from some of the islands in Torres Straits, who are kept well supplied with these articles by trading with the vessels engaged in the pearl fisheries.

The type of this race of people is more uniform, and the prognathic form is not common. The forehead is developed, and retreats backwards. The hair is frizzled and woolly, often short, and equally distributed over the scalp, and black; if worn long, it was greasy and dirty from being smeared with oil or fat mixed with earth and ashes. The natives are for the most part tall

and slender. About forty or fifty came on board. I thought at first that circumcision was practised among them, but I afterwards found I was mistaken. About eleven out of the number that came on board had tumours of the scrotum and enlargement of the inguinal glands, but they did not appear to be inconvenienced by it, for the one who had the largest leaped on board and again into his canoe with great agility. In the colour of the skin they resemble the natives of Katau, or they may be a shade lighter. The forehead is much depressed and narrow, the supraorbital ridges and the zygomatic bones are very prominent, the nose aquiline, and the septum perforated. They have small, dark, chestnut-coloured eyes, and in many of them I observed a bluish ring round the iris. They have strong and very white teeth. There is not very much hair over the body, although what they have is permitted to grow; they have thick and short beards. They did not evince any surprise at anything they saw, still they asked for any object that attracted their attention, even although it would have been quite useless to them.

I managed to get the following measurements of some of them, and the average of those I measured was as follows:—

	Inches.	Lines.
Circumference of the head	20	2½
Circumference of the chest above the nipples	33	2½
Circumference of the pelvis..	31	2½
Length from the pelvis to the foot	39	2
Length of the leg	20	1
Length of the arm	14	1
Length of the forearm	11	1
Length of the foot	10	2

The average of the total height, 5 feet 8 inches. They smoke tobacco from large bamboo pipes similar to those used among other islands in Torres Straits, and also by the natives of Cape York. I have previously mentioned that the type of these people is more homogeneous than that of Katau. I still cannot, however, consider them a pure race.

Opposite Canoa Island, about seventy miles from the mouth of the river, there are some large villages, and a numerous population. Although on our first approach the natives displayed a hostile feeling, and advanced boldly to attack us, yet by the exercise of a wise policy towards them, and showing our power without inflicting any injury (except we had been compelled to do so for self-preservation), we succeeded in reconciling them, and we became very friendly; it terminated in a number of canoes coming to the steamer, several of the natives coming

on board and remaining several hours, regarding with great interest and curiosity every object that attracted their attention; they asked questions, and replied to any made to them through Maino, who acted as interpreter, making use of the Kiwai language.

From the anchorage not more than two houses of the nearest village were visible, one of which was estimated at about 500 feet in length; and a little behind the edge of the bank we could discern cocoanut palms, banana, and breadfruit trees growing abundantly about the village. On the top of one of the latter trees I observed the red feathers of the bird of paradise (Paradisea raggiana) suspended from a branch, which I supposed was placed there as a decoy to attract those birds to the snares placed for them by the natives, or to bring them within reach of their arrows, as is the custom among the Aru islanders.

The chief of the village also came on board. He was a fine-looking man and seemed very intelligent; he conversed freely, moving actively about, and laughing; although I do not consider, in spite of his cheerful manner, that he had dismissed his fear at being amongst a strange race of people, yet he seemed very much gratified at receiving so much attention and kindness shown to him, and being such an object of curiosity. He accepted everything given to him, but never asked for anything. From the natives that came on board, and from those I observed in the canoes, I made notes of their physical appearance. They bear a great resemblance to the people of Kiwai, but are a little lighter in colour and more slender in form. I saw some resembling Arabs. Their average height is moderate, the head comparatively small, the forehead depressed and sloping backwards. I observed so uniform a resemblance among them as to lead me to come at once to the conclusion that they must either intermarry among themselves or among a people of a similar race. What are they? is the question. If we take as a type of the Papuan race the inhabitants of the north-west part of New Guinea, I do not consider they belong to that race, but may be considered as approximating nearer to those of the south-east part—at least as far as we have had as yet an opportunity of observing those living on the coast.

I met natives who were on a visit at Yule Island, who came from Cape Possession, and closely resembled them. However, I do not believe they are a pure race. In common with the two races of the East and West, many customs, &c., showed that they participate in the two races. They have, similar to those of the North, the hunting for heads, and the construction of their habitations, although at this place there is a slight difference in

them, for here the houses have as many openings in them as there are inside compartments. Similar to those of the West, they build their canoes in the same manner, wear a head-dress made of the plumes of the birds of paradise, a heavy wooden belt, and a breastplate of mother-o'-pearl shell. Peculiar to themselves I observed a helmet very skilfully made with rattan and cord, also a piece of white shell used as a portion of their war dress, and worn over the pudenda. But that which was most peculiar to them, and new to the ethnologist, was the method adopted by them in preserving the heads of their enemies.

In the North, as is well known, the natives are of a very ferocious character, and very active head hunters, but preserve only the skulls. At Katau the natives also hunt for heads, and preserve the skulls, at the same time separating the lower jaw, which is said to be used occasionally as an ornament. But these people do not only hunt for and preserve the skulls, but they are in the habit of adorning them with great skill, and this process is, as far as I have observed, quite novel in New Guinea, although I believe the practice is adopted at other islands east of New Guinea.

After the skulls have been perfectly cleaned they cover them with a mask, formed from a preparation of wax, probably mixed with some resinous material; the mask extends from the upper part of the forehead to the roots of the teeth of the upper jaw. The upper part of the mask is adorned with the bright red seeds of the wild liquorice vine (Abrus precatorius), and the outer edge is adorned by plaited stripes of rattan. The eyes are represented by two small species of the cowrie shell, or a black seed also surrounded by the scarlet seeds of the Abrus precatorius; from the zygomatic process of the temporal bones, two long fringed ear-pendants are suspended, similar to those generally worn by the natives. The lower jaw is strongly fastened behind to the zygomatic bones, and in front by small rattan cords from below the symphisis of the chin, passing inside the nasal passages. In this way the lower jaw is secured to the upper. To this is attached a loop of plaited rattan, two feet long, which is used as a handle. This loop is secured to the skull by a transverse stick of hard wood, passing behind the two condyles of the lower jaw, and in front of the foramen magnum. In removing the mask from one of the skulls, I found the orbits were almost entirely filled with lime, and the long thorn of the sago palm was inserted in the optic foramen. To give support, strength, and the required length to the nose, a piece of rattan is ingeniously used, and the distension of the nostrils effected by the insertion of sagu thorns and grass. The interior of the skulls was found partially filled with stones, hard seeds, pumice-

stone, and kept in by dried grass. When held by the loop and swung about, a loud rattling noise is produced, and we infer from it that they are probably used in their dances.

The weapons used by these people are bows and arrows. The bows are about six feet high, the arrows vary very much, some are pointed with hard wood, others with bamboo, bones, and a few with the long nail of the cassowary. It is said that some of the arrows are poisoned, and I believe the statement, which was also confirmed by Maino, and from the following fact. I asked the natives to sell me some of their weapons, and they readily did so, but when I wanted to purchase one pointed with bamboo they refused, until I offered so high a price that they could not resist the temptation, and then handed it to me with the greatest care, so that no one should be touched by the point, which appeared to be smeared with some preparation of a reddish colour. As far as I could ascertain by signs, I understood them that some were poisoned, but not the others.

They always carry with them a bamboo knife, which is used for severing the heads of their enemies; they do not usually keep it sharp, but when required they sharpen the edge with a shell (a fresh-water species of Cyrena), which is always carried for the purpose, attached to the knife. They have also a kind of dagger, formed from the thigh-bone of the cassowary, the handle of which is tastefully adorned with the red seeds of the Abrus precatorius. The dagger is used to dispatch the wounded man, and then the bamboo knife to cut off his head.

The *worthy* Maino, who according to his own confession had cut off thirty-three heads himself, gave us a full and minute description of his mode of operation. It was thus: when the victim was dead the skin and muscles of the neck were cut through, then grasping the head with both hands, it was forcibly inclined from one side to the other, and then by a powerful twist the bones of the neck were dislocated, and by a little further aid from the knife the head was off. To give us an illustration how it was done, he acted fictitiously on a man on board.

The further the traveller advances into New Guinea the greater the difficulty is increased of enabling the anthropologist to solve the problem of the Papuan race, and I do not consider that we shall be able to come to any conclusion respecting them until more of the interior has been explored, for short visits to the coast will not serve the purpose, and also until we have become acquainted with their language, as well as a comparison of the skulls of the various races. I am aware that some anthropologists do not place much dependence solely on the skulls, still it has been found of great assistance in some degree of determining the various races.

I regret not being able to procure a single skull of a native of Yule Island, for I consider it would have proved interesting to compare with the ten I procured from the natives of the Fly River, for which I am indebted to the kindness of Mr. Chester. This collection of skulls is most interesting both to the anthropologist and the ethnologist; perhaps more to the first than the last, for they differ very much from all the New Guinea skulls we have yet obtained, so much so that we are led to believe that they belong to quite a different race of people.

On comparing the measurements I made of three skulls from the Fly River, one from York Island, and another from a small island near Prince of Wales Island in Torres Straits, the result was as follows:—In the Fly River skull the breadth is to the height as 88 to 100, 84 to 100, and 85 to 100, so they belong to the brachycephalic form. In those from Torres Straits they were 71 to 100, which places them in the dolicocephalic division. It is remarkable that all the skulls I procured at random at the Fly River are so much alike that it is difficult to distinguish any difference one from the other, still when comparing them with notes I made on some of the natives of Yule Island, especially those from or near Cape Possession, I do not hesitate to say that the natives of the Fly River are more allied to the Eastern than to the Western race.

On the 14th of December we were 150 miles up the Fly River, the furthest point reached by the Ellangowan. Not far from our anchorage I found the ruins of an old village composed of five houses. They were from 30 feet to 40 feet in length, and from 15 feet to 20 feet wide; they were constructed of the trunks of small trees, and had been covered with palm leaves. The floor was only a foot and a half from the ground; a trench, 2 feet wide and about the same in depth, had been dug all round the habitations, for the purpose of draining them, a most remarkable and novel proceeding for New Guinea. Close to the village I observed some wild bananas growing, and a grass, called "Job's Tears" (Coix lachryma), the seeds of which are used generally in New Guinea for making necklaces and other ornaments.

This ruined village was so far distant from the last natives we saw that I am inclined to consider that it had been inhabited by some of the natives of the interior. The general appearance of the country on the borders of the river consisted of low swampy islands, formed by a large delta, some old and some more recently formed, by the mud brought down by the floods or the natural flow of the water: some are evidently in a state of formation, while others are disappearing, being washed away by the current. This, I expect, will be the fate of Canoa Island,

which had very recently been severely injured by a hurricane, destroying a large number of trees, and its banks can almost daily be seen to be washed away by the floods and currents. The relative age of the different islands may be estimated by the rich or poor vegetation seen upon them. Here the wild nutmeg and gigantic fig trees are seen in fruit and luxuriance of foliage, attracting the fruit-eating pigeons (Carpophaga), the red bird of paradise (Paradisea raggiana), horn bills (Buceros ruficollis), and other species of frugivorous birds in great numbers. At another part the candle-nut tree (Aleurites), and several species of kanary-nut trees (Canarium), on the fruit of which the great palm cockatoos (Microglossus atterimus) feed."

Mr. Brabrook then read the following paper, in the absence of the author:

South Sea Islanders. By W. L. Ranken.

The inhabitants of the islands of the South Sea are called generally Polynesians, sometimes distinguished as Black or Red, North or South; but as races, there are two distinct stocks, the one approaching African types, the other Mongolian—the first generally considered Papuan, and the other without any distinctive name. There need be no delay in giving this other race—of red men, having straight hair—the one family name by which they call themselves. As the dialects vary, as one group use the *r*, which another cannot pronounce, one the aspirate, another none, so the name of their race varies in different islands, but is always the same root. That name is *Mahori* in most southern groups, *Mahoi* in some, *Maori* in others. The first form of *Mahori* would be recognised by the great majority of the race as their own name, as distinctive from any Papuans or other foreigners, and the first will therefore be used for that purpose in this paper.

The writer proposes to show the extreme probability—

1. That Papuan races first occupied the South Sea.
2. That secondly, in time, a Mahori settlement was formed in Samoa.
3. That from Samoa they colonised the South Sea.
4. That, in so doing, those Mahoris sometimes intruded upon Papuans, intermixed with them, and thereby obtained the variety of appearance and character found among Mahoris.
5. That this Mahori migration was from the Indian Archipelago, and so recently that the Mahoris have many modern Malay words. But, inasmuch as the Mahori language has a different construction, remarkably few Malay roots, and many

peculiarities of its own, the Mahoris are not Malays, but a cognate race.

To do this, and sufficiently cover the ground of inquiry, it will be necessary to describe the peculiarities of the peoples, the contrasts of various islanders, the traditions of their origin or migration, from the writings of naturalists and travellers; to add the traditions which the writer found in Rarotonga; to meet any objections to such a course of migration; and to apply Mr. Crawfurd's critique upon the Mahori language to these conclusions.

Mr. Wallace and several other naturalists speak of the Polynesian and Asiatic races, and otherwise also indicate a belief in there having been a Polynesian continent having its own race of men. But there is no ground for believing such land has existed within any period calculable by ethnologist, or even by geologist. The floor of the Pacific Ocean must at one time have been dry land, but that must have been a very remote geological date, for many reasons. The coral atolls show a subsidence which, added to the time necessary to the disappearance of the mountains of which they are but the tombs, and of the continents upon which these ranges stood, must far exceed the utmost age of man upon earth, even if he has been millions of years, as some propose. And of any such continent there is no single animal left, while there are many isles large enough, and more than rich enough, to support numbers; nor is there a distinguishing flora. There is no evidence of an indigenous race having survived the subsidence in the Pacific of a continent, of which only some islands remain. It is more likely there has been a Lemuria in the Indian Ocean, as proposed by Professor Huxley; for the Fijian is more like a Kaffir than like his next neighbour the Samoan; and this resemblance to Africans runs through all Papuans from Fiji to Madagascar. The islands of the South Sea have been most likely colonised by many migrations of Papuans, and by two streams of Mahoris, peoples of two distinct stocks.

The two adjacent groups of Samoa and Fiji present as complete a contrast in their populations as any others perhaps; but such contrasts between neighbouring isles are very common. There is no better description given of the two types than that by Mr. Pritchard, who long lived both in Samoa and in Fiji. He says:—The Fijian's "skin is dark, rough, harsh; his hair, naturally black and copious, is bushy, persistently frizzled, almost wiry. Indeed, it seems something between hair and wool. His beard, of the same texture, is equally profuse and bushy, and is his greatest pride. His stature is large, but somewhat less than that of the Samoan or Tongan; his muscular development is more

perfect, while his limbs are less rounded and his figure generally slighter. His eye is restless, his manner suspicious, his movements light and active. Now look at the pure Samoan. His skin is a dark reddish brown, smooth and soft; his hair, though naturally black and copious, is coarse, seldom wavy, generally straight. He is almost beardless, and abhors a hairy chin. His stature is herculean, his limbs well rounded, his figure symmetrical, his manner quiet and confiding, his action strikingly graceful, his eye soft and subdued; his movements lack energy and quickness. Compare, further, the profile of the Tongan or Samoan with that of the Fijian," and it is by no means prominent.

These descriptions almost coincide with those of the Papuan and Malay types given as follows by Mr. Wallace. He says, of the many civilised and savage tribes of Malays, "the colour of all is a light reddish brown, with more or less of an olive tinge, not varying in any important degree over an extent of country as large as all Southern Europe. The hair is equally constant, being invariably black and straight, and of a rather coarse texture, so that any lighter tint, or any wave or curl in it, is an almost certain proof of the admixture of some foreign blood. The face is nearly destitute of beard, and the breast and limbs are free from hair. The stature is tolerably equal, and is always considerably below that of the average European. The body is robust, the breast well developed, the feet small, thick, and short; the hands small, and rather delicate. The face is a little broad, and inclined to be flat; the forehead is rather rounded, the brows rather low, the eyes black and very slightly oblique; the nose is rather small, not prominent, but straight and well shaped; the apex a little rounded, the nostrils broad and slightly exposed; the cheek-bones are rather prominent, the mouth large, the lips broad and well cut, but not protruding; the chin small and well formed." This is a better description of a Samoan than Mr. Pritchard's, although written by Mr. Wallace of a Malay, particularly as regards the hands and feet and the features of the face. The only errors are in the stature and the hair. The Samoan is herculean, over, not under, the European average, and his hair is seldom lank, generally wavy. His further account of the Malay is true also of the Samoan:—"The Malay is impassive, he is not demonstrative. Children and women are timid. When alone the Malay is taciturn; when several are paddling in a canoe, they occasionally chant a monotonous and plaintive song. Practical joking is utterly repugnant to his disposition; for he is particularly sensitive to breaches of etiquette. The higher class Malays are exceedingly polite, and have all the quiet ease and dignity of the best-bred Europeans." All which are Samoan characteristics.

The other great race of the Malay Archipelago he thus describes:—"The typical Papuan race is in many respects the opposite of the Malay. The colour of the body is a deep sooty-brown, or black, sometimes approaching, but never quite equalling, the negro. It varies in tint more than the Malay. The hair is hard, dry, and frizzly, growing in little tufts or curls, which grow out to a considerable length, forming the compact frizzly mop which is the Papuan's pride and glory. The face is adorned with a beard of the same frizzly nature as the hair. The arms, legs, and breast are also more or less clothed with a hair of a similar nature. In stature the Papuan decidedly surpasses the Malay, and is equal, or even superior, to the average of Europeans. The legs are long and thin, and the hands and feet longer than in the Malays. The face is somewhat elongated; the nose is large, rather arched, and high; the mouth is large and protuberant. He is impulsive and demonstrative in speech and action. His emotions and passions express themselves in shouts and laughter, in yells and frantic leapings. Women and children take their share in every discussion." Such is a pure Fijian also; he must therefore be a Papuan. But all Papuans are not in perfect conformity with that description, for Mr. Earl says:—"There are considerable differences in the stature of Papuans. Within a space of a hundred miles on the south-east coast of New Guinea, the stature varies from that of the finer races of Europeans to that of people who would be called pigmies." Mr. Wallace tells of another, the people of Ceram and North Gilolo, whom he thinks "quite distinct from the Malays, and almost equally so from the Papuans. They are tall and well-made, with Papuan features and curly hair; they are bearded and hairy-limbed, but quite as light in colour as Malays."

All these types exist in the South Sea, and gradations between each; but all are divisible in two types, including some like the people of Ceram, who are also Papuans. Mr. Wallace speaks of *Alfuros* as a race, but that is generally supposed to be a Portuguese word applied to Pagans in the Malay Archipelago—that is, natives not converted to Mahomedanism. Mr. Earl says the peculiarity of all Papuan races is their frizzled hair. The word *papua* is Malay for *frizzly*, and correctly describes the habit of the hair all those Papuans have so much of. This habit of curling up arises from the form of the filament being flattish instead of round; it is *eccentrically elliptical* in section, both in the beard and on the head. All Papuans have the hairs of their heads and beards oval instead of round; this makes it curl in the manner peculiar to it; and, as this oval hair seems to be a persistent mark of Papuan blood, wherever we find curly or

frizzly or very wavy hair, or, indeed, Mr. Wallace says, any but straight lank hair, in this part of the world, we may attribute it to Papuan blood.

The races inhabiting nearly every isle from Papua or New Guinea, to the Windward Isles of the Fiji group, are Papuans. They vary much in stature, colour, features, limbs, and even in hair; but they all have the black, frizzly, Papuan hair, and with it most of the fierce Papuan character. But beyond Fiji, south and east, besides north of the equator, all are decidedly of the Malay type, and might be Malays but that they have a totally different language. These two families seem to have colonised the Pacific. Probably not by one, but by many migrations the Papuan came from Papua; but by one migration, possibly, the Mahori reached Samoa, whence his descendants spread north and south and east and west; and in the north these Samoans seem to have met another stream of migration by their own race, which came apparently from the Philippines.

The Papuan Migrations.

We may conclude the Papuan came first for many reasons. The Mahori is the superior, and, as we always find the superior race dispossess the inferior, so we find the Mahori displace the Papuan in the Fiji group to-day. Again, traditions in many isles tell of the present Mahori people having found a black people there when they came; and as these Mahoris, and the inhabitants of adjoining poorer isles, frequently show more resemblance to Papuans than other Mahoris, we may conclude the black first inhabitants were Papuans. There is no reason, except the superiority of race, why the Fijians could not conquer Tonga, instead of Tongans overrunning Fiji; indeed, there are good reasons in the superior numbers, greater energy, greater resources, and in the warlike ferocity of the Fijians, for the latter having long ago conquered both Tonga and Samoa. It is surprising they did not. They are quite equal in intelligence and physique, superior in energy and power; they had arms, canoes, and food quite as good, yet seemed to have always given way to the gentle Samoan stock. The very canoes in which the Tongans became the pirates throughout the Fiji and neighbouring groups were made of Fiji timber, and generally in Fiji; there was no such in Tonga or Samoa. The islands beyond Fiji, where we find most marked intermixture of Papuan traits, are Penryhn's atoll and Rarotonga group generally, and the island of Niuë (or Savage I.).

There is great diversity among the islanders of the Papuan stock. Some show a small infusion of Mahori blood, caused by intermixture of stray Mahori colonies possibly; such are the

people of the Santa Cruz and Loyalty groups, and others. On the south-east peninsula of Papua itself is a Mahori colony, speaking a dialect which the natives of Rarotonga at once understand, and like all the Mahoris in feature, person, and character. On the isle of Rotuma, the natives say, a Samoan colony came and settled, although the language is more like a Papuan dialect than like Samoan. On the isle of Uea (or Halgan I.), in the Loyalty group, Admiral Erskine says: "According to tradition, the forefathers of the people composing this tribe landed only one or two generations ago, from a long voyage which they had undertaken from Uvea, or Uvia, or Uea, the modern Wallis Island. The reason assigned for their departure was the death of a son of a great chief, occasioned by the accidental falling of a hatchet on his head while asleep. The persons in fault, not daring to face the chief after the disaster, escaped to the canoes, and, abandoning themselves to the winds and waves, after a long voyage (the distance is upwards of 1,000 miles), landed on the northern coast of this island, to which they gave the name of their birthplace. The original inhabitants, driven back by the intruders, are said still to inhabit the central part of the island." In this way many islands, decidedly Papuan, may show some lighter colour, or less frizzly hair, than others purer; for these two races on one island are sure to intermix in time.

But apart from any possible blending of races so dissimilar, there are among pure Papuans a great variety of men. Captain Cook describes several Papuan tribes. The people of Malicolo, New Hebrides, he says, were "in general the most ugly, ill-proportioned people I ever saw, and in every respect different from any we had met with in this sea. They are a very dark coloured, diminutive race; with long heads, flat faces, and monkey countenances; their hair, mostly black or brown, is short and curly, but not quite so soft and woolly as that of a negro. Their beards are short, crisp, and bushy." The Tanna-men were "of a middle size, have a good shape, and tolerable features. Their colour is very dark; their hair is very curly and crisp, and somewhat woolly." The New Caledonians he found "a strong, robust, active, well-made people, courteous and friendly, and not in the least addicted to pilfering, which is more than can be said of any other nation in this sea." "They are nearly of the same colour as the people of Tanna, but have better features, more agreeable countenances, and are a much stouter race, a few being seen who measured 6 feet 2 inches. I observed some who had thick lips, flat noses, and full cheeks, and in some degree the feature and look of a negro. Their hair and beards are in general black, and the former is very much frizzled."

Captain Cheyne says of the natives of Lifri, one of the

Loyalty group: "The natives are about the middle size, and exhibit a great variety of figure. Their complexion is that of a chocolate colour. Their hair is frizzled; and besides the long bushy beards and whiskers worn by many, they have a great quantity of hair on their bodies." He says of the natives of Uea, visited by Admiral Erskine, "their complexion lies between that of the black and the copper coloured races, although instances of both extremes are met with, which would lead us to suppose that some of them were descended from two different stocks." "Occasionally we met with strongly marked negro characteristics, but still more frequently with a Jewish cast of feature, while every now and then a face presented itself which struck me as being perfectly Malayan."

The differences are not only numerous and striking among all these Papuan tribes, but often the contrasts are close together, of adjacent isles. Among the Solomon Islands, the San Christoval natives are short, generally black, sometimes brown, with woolly or wavy hair; at Ysabel they are short and slight, brown, with wavy hair. In some of the New Hebrides they are tall, black, and woolly-headed; but on the island of Mailava, fifteen miles distant, north of the New Hebrides, we find the Banks Islanders totally different. They are a short, plump, quiet race; black, woolly-headed, nose not very flat nor lips very thick, limbs round, features small. They are very quiet. Banks boys are the best nurses and house servants in Fiji. A New Hebrides boy is as good as any for rough work, useless for anything quiet or gentle. The wilder the imported labourer is, the better for field work, as a rule. There is none like a tall, black, fierce cannibal; your graceful Mahori is of no use. And among Mahoris, the darker his colour, the more Papuan there is in him, the better labourer he is. A Miré boy, a Rarotongan, sometimes a New Zealander or a Hawaiian, may do a little work, especially as sailors. On the beach at Papété, Paumotu boys work, and at Upia, Rarotongans; but very few Tahitians or Samoans. Tongans are numerous in Fiji, but they never work; and as for Samoans, the planters, who have tried them, say they are too conceited, "they are all chiefs."

But however varied the tribes may be, they are all referable to one or other of the two stocks—Papuan or Mahori. Mr. Wallace mentions another, the people of the Andaman Islands, as being represented in the Archipelago, but they have no tribe approaching them in this region, unless the Australians may. The Andaman Islanders are described as of excessively low intelligence, devoid of energy, slight in frame, black, woolly, flat-nosed, thick-lipped, and having miserable heads; all descriptive of the aborigines of Australia. This, or a cognate race,

may have extended south to Papua and adjacent islands, and may have disappeared before Papuans, as those did before the Mahoris farther south, and as Malays did before Hindus in Java, Australia being their last seat.

The darker complexion of the natives of some isles cannot be taken as a proof of Papuan blood, nor of any intermixture with Mahori. For in Samoa, Tonga, Tahiti, in the Marquesas and other groups, especially when there is plenty of food and little labour, the natives prize the beauty of their women, and their ideas of beauty are much like our own. They esteem a fair complexion, therefore the women study to keep in the shade, in order to improve their complexion, and they succeed to a wonderful extent. There are many women in these isles quite as fair as a Roman peasant, some fairer, and chiefs are generally lighter than the rest of the people. On poorer isles again, particularly on coral atolls, where most food is obtained on the reef, exposure to the sun deepens the colour. Nor must we be surprised to find customs, which we may consider Papuan, among any or all Mahoris; for having lived in Samoa for generations, in communication with the neighbouring Fijis, such customs may have been borrowed thence. Tradition, both in Samoa and Tonga, agree that the custom of tattooing was introduced from Fiji, and possibly others, such as wood-carving, may have been similarly acquired in Samoa, before the Mahoris migrated farther throughout the South Sea.

Beyond the pure Papuans of Fiji, we find among Mahori tribes traces of the Papuan blood and character in many isles; first in Niuë, Cook's Savage Island, 700 miles east of Fiji, 300 miles east of Tonga. The first white man who had any intercourse with the natives of Niuë was John Williams, the pioneer missionary, and he thus describes the first native he saw:—"His appearance was truly terrific. He was tall, cheek-bones prominent, countenance most forbidding; and his beard, plaited and twisted together, hung from his mouth like so many rats' tails. On reaching the deck, he was most frantic, leaping about from place to place, and using the most vociferous gesticulations at everything he saw." That was a Papuan. Cook describes a man at Samoa as having his hair twisted into plaits, "like whipcord," and that may be seen in Samoa now. Yet the natives of Niuë say they came from Samoa, they speak that dialect very purely, and have Samoan ideas and customs. But, they say, when they came to Niuë, they found some black people there. We may, from the description of this man above, conclude that he was of that earlier race, and he is Papuan in his appearance and manner, quite unlike a Samoan.

Farther from Fiji, 1,500 miles E.N.E., or 900 miles N.E. of

Niuë, there is a colony of Papuans only slightly intermixed apparently with Mahoris. This is at Penryhn's Isle, a poor atoll, having a population of some 300 souls. They are tall, dark brown, have wavy hair, sometimes frizzled into mops, prominent nose and brows, lighter limbs and larger feet than Mahoris, and show in their manners even more of the Papuan than in their appearance. In Penryhn's, the whole population, men, women, and children, quarrel and wrangle the whole night long. They must fish for food, or dive for pearl shell all day; they come home by sunset, eat, and begin discussing matters. They soon quarrel, the women join, they wrangle and storm, the children even join, and continue this all night, but never fight. It all ends in nothing, they never fight, but bluster and shout, and scream night after night. This again is quite Papuan, a Mahori never loses his dignity in this way.

South of Penryhn's 700 miles, and as far east by south of Niuë, is Rarotonga. The natives here have the most distinct traditions of their migrations from Samoa, and they say they found a race of black people here on their arrival. Some say they killed those people, others say they lived with them; probably they did both, killed the men and took the women. The present Rarotongans are darker, have more marked features, much more energy, and also more wavy hair than Samoans, showing an approach to the Papuan. And the Rarotongans have always had a knowledge of Penryhn's and other neighbouring isles, they class them all as *Tongareva;* so it is possible Penryhn's may have been the refuge of Papuans expelled from Rarotonga by these Mahori settlers, for such a poor atoll is not likely to have been inhabited as long as the fertile Rarotonga was not well peopled.

South of Rarotonga is Mangaia, another outpost of Papuan blood. The Mangaians used to be fierce cannibals and systematic man-hunters forty years ago. They are dark brown; have wavy, sometimes possibly frizzly, hair; beards; more prominent features than Rarotongans, and wilder manners. In many other isles east of this there is a strong Papuan element. South-east of Tahiti the Paumotus show some evidence of a population having been there prior to the Mahori occupation. Captain Beechey remarked this as one instance of the fact, that inferior isles have generally an inferior and darker people. But both may arise from the poverty and the exposure the people are subject to. In the Paumotus, however, there were a number of words not traceable to any Mahori dialect.

These are the limits of the Papuan. We have thus found him in possession of Fiji, and all the isles from that to Papua and Torres Straits, holding many archipelagoes in what may be

called the Papuan Sea; only trespassed upon by one strong colony of Mahoris on the south-eastern portion of Papua, and by some waifs and strays of Mahoris in Rotuma, Uea, and possibly on the Santaling and other islands. While beyond Fiji we find traces of him, in the approach some Mahori colonies make to his appearance and to his character, in Niuë, Penryhn's, Rarotonga, Mangaia, the Paumotus, and a few more remote isles. And having traditions of the Mahori occupations of those isles, without any record of later arrivals, and with mention of a black inferior people having preceded the Mahori occupations, we are led to believe that the Papuan was the first holder of these isles.

The Mahori Migrations.

Before tracing the Mahori into the South Sea, let us collect the scattered tribes to the point of departure, whence they colonised all this ocean, and trace their emigrations and settlements by the traditions of various islands, the resemblance of each to one central tribe, and other collateral evidence; weighing contrary theories and difficulties against traditions and facts. Then from tradition again, supported by many coincidences of custom and great similarity of appearance, we will follow them back to the Malay Archipelago, and find that, although not Malays, the Mahoris are a kindred race, and of recent departure from that neighbourhood.

Savaii is the home of all tradition in the South Sea of Mahoris. Savaii is the largest of the Samoan islands. Adjacent to this is the Tonga group, so near that any people colonising Samoa, being a maritime people, would know Tonga from the first, and may have settled both simultaneously. But there are no traditions of any migrations from Tonga, all are from Samoa; and many customs in Tonga are acknowledged to be from Samoa. Mariner, in his admirable account of Tonga, describes dances from Samoa, and chants the words of which were not understood, although repeated by one generation from the preceding, by Tongans, but supposed to be Samoan. Except that the Tongan is now so much intermixed with the Fijian blood, it may be considered Samoan.

About 300 miles S. by E. of Samoa is Niuë, and here is a Samoan colony. The people themselves say so, speaking an almost pure Samoan dialect, having the same appearance and customs as Samoans, only varied by their change from a very rich to a very poor island. This colony found previous inhabitants, in all likelihood Papuans, and from intermixture with these there are many curly or wavy heads of hair in Niuë; the land is poor, the people have to work hard, so they are

darker, more wiry, more active, less magnificent in physique, and less luxurious than the Samoan; yet they are much more like Samoans than any other islanders.

North of Samoa a chain of groups and islands extends to the Equator, all poor coral atolls, some miserably starved by droughts, exceptions to the rich isles of the South Sea, and contrasts to rich Samoa. They have little in the best of these isles; cocoa-nuts and pandanus, sometimes with a little taro laboriously cultivated in pits several feet deep, and by much care a little bread fruit in exceptionally favoured spots. Due north of Samoa, 300 miles, is the Tokelau or Union group, and of these people Wilkes says: "Their canoes, and the decorations on them, with their paddles, and the shape of their blades, are Samoan, whom the people very much resemble, speaking an allied dialect," which his Samoans understood. The identity of the shape of the paddle is a proof of its recent introduction from Samoa, probably brought by themselves at first, for there is, perhaps, nothing in which groups and isles differ from each other so much as in this simple contrivance, each has a peculiar size and shape of paddle, adapted to their native wood, peculiar canoe, and kind of navigation. The timber of Tokelau, being only cocoa palms, is quite different from what Samoans use for paddles; this coincidence, their proximity and great resemblance to Samoans, give strong proof of their migration recently from Samoa.

About 600 miles N.W. of Samoa is the Ellice group. The people here, again, speak a dialect resembling Samoan, more than any other, and are themselves in appearance very like that people. But a most decisive proof of their history was recently obtained by Dr. G. A. Turner while visiting the missions of the group. He was shown, and he ultimately obtained, a spear or staff, which their orators held while speaking, a Samoan custom indicating the holder's right to speak; this staff was very ancient, and the greatest treasure of their heralds and genealogists; they said they brought it with them from Samoa, and named the valley where they came from thirty generations back. The staff was decayed or worm-eaten, and bound together by splints and sumit. Dr. Turner took it to Samoa, found that it was made of Samoan timber, visited the valley they named, and discovered a tradition there of a large party having gone to sea exploring, and never returning.

North and west of the Ellice are the Kingsmill or Gilbert Islands, extending in a long-linked chain to Makin, 1,500 miles N.W. of Samoa. These i'es are all of the same people, trying to live in the same way as Samoans. Their poor coral beaches give very little food, the reefs are their best friends;

but they cultivate assiduously some plants quite foreign to such a soil and climate, plants which would at once disappear if left to the care of natives—these are Taro and Breadfruit. Now, this breadfruit is one of the Samoan species, and Wilkes says: "Of all the native accounts of the peopling of the groups of the vast Pacific, that of the Kingsmill group bears the strongest impress of truth and historical probability. What adds to the probability of this story, is the fact, that it is almost the only tradition these islanders have. This account states, that the first inhabitants arrived in two canoes from *Baneba*, an island which they say lies to the S.W., and whence they had escaped during a civil war. After they had arrived, and had begun a settlement, two other canoes happened to arrive from an island to the S.E., which they called *Amoi*. The natives in the last canoes were lighter and better looking than their predecessors, and spoke a different language. For one or two generations the two races lived in harmony; but the Baneba people, coveting the wives of the people of Amoi, difficulties arose, which ended in the Amoi men being put to death by the people of Baneba, and the latter taking possession of the women. From these Samoans all the Kingsmill natives are descended. The breadfruit is said to have been brought by the Amoi people, the taro by the Baneba." Now there is no doubt *Baneba* is Ponapi, or else an isle of the Carolines, and *Amoi* must be Samoa. Here the two waves of migration met. The one direct from its Asiatic shore, through the Philippines and Carolines; the other having swept round Samoa. Before reaching the Kingsmills from Samoa, these colonists must have seen and passed many isles, consequently, again, those isles were settled by Samoans.

The race which colonised the Carolines necessarily extended through the Marshall's. The Marshall's are the nearest land to the Sandwich Isles. But the natives of the Sandwich group at the time of their discovery knew of no other land than Tahiti. Let us follow the Hawaiians, or Sandwich Islanders, back homewards, step by step, accounting for the migrations of the various inhabitants of the several islands in so doing. In Ellis's "Polynesian Researches," still the best authority on these groups he visited, we find that the Hawaiians knew of Tahiti only, notwithstanding that Ellis himself had another theory of migrations. From his knowledge of several canoes from different groups having been carried to leeward by the trade winds, he could not conceive it possible that any native canoes could have come far from the westward against these prevailing winds; but the customs and character of the people led him to believe they came from Asia; therefore, he proposed the theory

that they had migrated along the shore of the Asiatic continent to America, colonised it, and thence travelled down the trade winds, and peopled the Pacific. But no island has been found giving any idea of such a continent or such a journey; they all point westward, none to America; and we will find ample evidence of migrations against the course of the trade winds. Ellis says of Hawaii: "The general opinions entertained by the nations, as to their origin, are either that the first inhabitants were created on the islands, descended from the gods, by whom they were first inhabited, or that they came from a country which they call Tahiti." Again, "Among many traditionary accounts of the origin of the islands and its inhabitants, one was that in former times, when there was nothing but sea, an immense bird settled on the water and laid an egg, which, soon bursting, produced the island of Hawaii. Shortly after this, a man and a woman, with a dog, a hog, and a pair of fowls, arrived in a canoe from the Society Islands," said to be Bolabola, 120 miles from Tahiti. Another account among the natives of Oáhu, states "that a number of persons arrived in a canoe from Tahiti." And Ellis concludes, "though these accounts do not prove that the Sandwich Islanders came originally from the Georgian Islands, they afford strong presumption in favour of such an opinion."

To follow them to Tahiti. Here the same fables of man's descent from gods, and of his creation from red earth, are mixed with a corruption of the Mosaic record, evidently acquired from Europeans, and very likely from the Spanish missionaries who visited them between Cook's voyages. All those fables placed the scene of creation in Raiatea, one of the Society Islands, 100 miles from Tahiti. This island, Raiatea is the cradle of all the mythology of the Eastern Pacific. Any legend of a deluge, oracle, supernatural act, or power, takes its scene in Raiatea. It was the birthplace and residence of Oro, one of the first gods of the second or human class, possibly deified heroes; Raiatea was the home, and here were the family lands of the first family in all the group; here was the celebrated *Marai*—the greatest temple in the South Pacific—and everything sacred and venerated derived some of its virtue from Raiatea. Ellis says of Raiatea, "Opoa is the most remarkable place in Raiatea; of its earth the first pair were made by Taaroa (Zeus); here Oro held his court. It was called Hawaii, and as some distant colonies are said to have proceeded from it, it was probably the place at which some of the inhabitants of the South Sea Islands arrived." One of those colonies was most likely that of the people who called the new island Hawaii. This name *Hawaii* is always used by people who have no

S, they would pronounce *Savaii* as *Havaii*, which might soon be corrupted into Hawaii. Having the habit of calling a new home after an old one, possibly these names of the most venerated spots in Raiatea were called after old homes. Now the names Opoa and Hawaii are remarkably like Upolu and Savaii, the two largest isles of Samoa.

M. de Bovi's (Revue Coloniale, 1855), who lived some time in Bolabola, the adjacent isle to Raiatea, and who was well acquainted with the neighbouring groups, says, that the people of those, the Society Isles, were well acquainted by tradition with Hamoa and Tonga, but knew nothing of the Marquesas and Gambia to windward, until told by Europeans. The people of the Marquesas told Captain Beechey that they came from *Havaiki*. This is evidently *Savaii* again, pronounced by a people who have no S, and who use the K frequently, a letter not found in Samoan. The New Zealander, speaking a dialect remarkably like that of the Marquesas, says also that he came from *Havaiki*. Neither Marquesan nor New Zealander may have come direct, but they appear to have called their new homes after Savaii, the principal island of the Samoan group. From all these traditions we find that the following groups, the Sandwich, Marquesas, and the Society, have been colonised by people from some *Savaii* or *Hawaii*, and that while Hawaii and Marquesas knew of the Society Isles, these did not know anything of the former, but knew of the Samoan Islands, of which the principal is Savaii. And Ellis, speaking generally of the South Sea Islands, says, after giving several legends of man's creation, that, "Another tradition stated that the first inhabitants of the South Sea Islands originally came from a country in the direction of the setting sun, to which they say several names were given, though none of them are remembered by the present inhabitants."

The objections to this migration against the common trade winds are the coincidence of certain Mahori customs in America, and the facility of migrating down the prevailing winds. The *marais*, or terraced enclosures for sacred purposes, are exactly like those of Mexico and Peru; that of Pachacama, in Peru, was almost a duplicate of that at Nukahiva, in the Marquesas. The poncho of America is used in the Pacific. The peculiar drink, kava, is said to have been known in Chili. But these are no more than coincidences. The *marai* was an open space, for roofing was not required except at night, or in rain; and the marai was only for occasional meetings, and it was such as would suit a meeting of a large number. Naturally it was in a conspicuous place, and generally therefore elevated, especially in low islands subject to the great waves of storms and tides.

Naturally it was kept very open and clear; then the approaches to it were kept in equally scrupulous order, and it became walled, gravelled or paved, and adorned. As the marai extended over the top of an eminence, it assumed a terraced form. Again, to make the inner temple more secluded, it was raised or walled in again; so that the marai, or oratory, was the natural form a large meeting place would assume in such a climate, where worship was celebrated, sacrifices made, and relics preserved in certain sanctuaries for the purpose, and when the people had not sufficient architectural skill to roof in a building capable of accommodating so many. It was an advance upon the grove, or the column of stones, as a temple, and it was well adapted to the climate. There is no reason why similar ideas should not have arisen to other men in similar circumstances, especially in rainless Peru. It seems the most natural and first impulse to elevate any object of veneration, after enclosing and adorning it. The terraced marai shows a series of such acts, and is most likely the result of any such feelings in such a climate in any part of the world. Some such temples appear to have been at one time in Java, and the common pagoda (idol house) bears no little likeness to a marai elaborated.

The use of the poncho is also a coincidence without any doubt. This garment, if it can be called one, is merely the mat or skin of the primitive man, with a hole cut in the centre for his head, the better to cover his body. It cannot be called the invention of any people; more likely it is the discovery of most savages on earth. In regard to the kava of Chili, it does not seem to be kava at all. Heindrich Brower, 1643, at Baldivia, near 40° S. lat., says: "Here about thirty canoes came aboard the ships with some cattle, and a large quantity of *chitie*, otherwise called *cawan*, which is the liquor in use among the Chilese. They take a quantity of a root called *inlie*, which they roast in the sands, or they take it unroasted. The root is chewed by the women and thrown into a large tub or vessel of water, and some other roots are added. They let it *stand a day or two, when it works like our beer.*" Again, Oliver van Noort says: "On the coast of Chili the inhabitants of the isle Mocha treated him to a drink called *cici*, similarly prepared, upon which the natives were accustomed to get intoxicated." Now kava does not intoxicate; it is purely a narcotic, and its effects on the nerves are not unlike those of hemp. Under its influence the least noise is insufferable; when a chief lay in this state it was death to man or beast who made the least noise. Kava was never fermented. It could not lie two days, nor two hours, but is drank at once, but without any roasting, or anything being added; and it is not known beyond 22° S. lat., while this *chitie* was in 40° S. New Zealanders have the name but not the plant.

Then in regard to the winds, the prevailing winds are mostly from the east, but every navigator can corroborate Cook's experience of the Society group, that he had frequently a fresh gale from the S.W. for two or three days, and sometimes, though very seldom, from the N.W. It is also well known that in October, November, and December the trade winds disappear, and as a rule S.W. winds prevail. One instance of a migration against the course of prevailing winds is as good as many. Captain Beechey picked up a canoe which had sailed from Chain Island for Tahiti, a voyage of about 100 miles west, down the trades. Two westerly gales had blown them to Banoir Island, 600 miles out of their course. On board were 26 men, 15 women, and 10 children, quite enough to form a colony, and this against prevailing winds. By such gales alone all the Paumotus and Marquesas might have been colonised from the Society Isles.

Tracing these migrations farther back, we found Raiatea, the centre of settlement and the home of Sandwich Islanders, and connected it with Samoa. Tracing others, we find Rarotonga, between Tahiti and Samoa, is also a Samoan colony. There is no difficulty in making a voyage from the Society group to Rarotonga, down the trades; and to show how, at some seasons, voyages eastward can also be made, we will instance one made by John Williams exactly from Samoa to Rarotonga, other isles, and Tahiti. Sailing from Samoa, he was at first 15 days in making Niuë, 300 miles S. Here he got a westerly breeze, and ran to Rarotonga, 800 miles E. by S., in 7 days. This in a small schooner of his own building in the islands. Carrying on the same breeze, he visited Mangaia, south of Rarotonga, called at Rurutu, and thence made Tahiti, 350 miles, in 48 hours. "After the fair wind sprang up, 200 miles west of Savage Island," he says, "we sailed, in the short space of 15 days, a distance of about 1,700 or 1,800 miles to the eastward."

Like the Kingsmills, Rarotonga seems to have been colonised from two sides at once; but both parties came originally from Samoa. Two clans hold Rarotonga, the Ngati Makea and the Ngati Tangiia. Tradition says that Karika, chief of the clan Makea, came from Manua, in Samoa, 800 miles N.W., and discovered Rarotonga; that he returned to Manua, and formed an expedition to settle in Rarotonga, and sailed. Upon his arrival a second time he fell in with Tangiia, who had come from Tahiti; Karika had only warriors in his party. Tangiia had some women and children; so Tangiia yielded the supremacy to Karika, which is maintained yet. The two clans settled together amicably, but found some black people there

before them. Tangiia tradition says that they were driven from Tahiti on account of disputes about land, where Tangiia was chief of A'a; but the full tradition of this family shows they came from Samoa to Tahiti. The present Queen Makea, of Rarotonga, is twenty-ninth in descent from Karika, of Manua.

Here is the tradition of the Tangiias, as given by one of the oldest men in Rarotonga:—"Awenga was a chief who sailed amongst other lands; he was from Avaiki. He sailed to Tongatapu, and from Tongatapu to Vavau; thence he tried to return to Avaiki (300 miles N. by E.), but did not make land. He was blown about by the wind, and could see no land; but the god Rongomatom took pity on him and led him to land. He visited Tongareva (Raratonga, and neighbouring isles), thence Rimitara and Rurutu, to Tabuai, where he got fire. From Tabuai he sailed to Akaau (?) and Paumotu, and at last reached Tahiti. Here he settled on the division of land called Puna'auia. He was the ancestor of Tangiia." His voyage is quite easily explained. He was returning from the Tonga Isles home, when he met northerly winds dead ahead; they blew him far south of his course, until he got into the westerly winds which prevail south of the region of trades; and these carried him from isle to isle far south of Rarotonga, until in the Paumotus he beat up for Tahiti.

We have thus direct assurance that the Rarotongans came from Samoa, one colony having first tried to settle in Tahiti, but apparently crowded out there. We have found traditions, names, and the identity of language and customs south and east and north of Samoa, all pointing to it as the centre from which all the South Pacific was settled on these sides. We have thus made Samoa the first home of the Mahori in the South Sea, and will now try to trace him beyond Samoa. Ellis heard that they came from the west, from lands of which they had forgot the names; and in Raratonga there are traditions of such lands and such migrations.

The Rev. W. Chalmers, of Rarotonga, many years ago collected a great deal of legendary lore from the dictation of old natives, and had laid the papers aside. But lately a branch mission has been formed in Papua, to which some natives of Rarotonga were sent as teachers; for the mission on the south-east coast of Papua is among a people like the Rarotongans, and this dialect is understood by Rarotongans, not so the people farther west in Papua. One of these teachers returned to visit his native island lately, after a year's absence, having learnt something of Papua, and created great interest in his tales and adventures. But what was most surprising was that some of the old men of Rarotonga professed to know

something of Papua, and asked the teacher about places there, naming them correctly. Upon being asked, they at once said that Papua was another name for the Land of Red Feathers, frequently mentioned in their legends, and that their ancestors had once lived there. This might have all been imagination, and invention incited by the travellers' tales of their countrymen; but upon examining some of these legends formerly collected, Mr. Chalmers found Papua distinctly named, and this in a passage written from dictation of an old chief years before any mission to Papua, and before any Rarotongan could have heard of it, even as New Guinea. This passage is the beginning of a prayer, or office, the first which the priest always recited upon going on to the *marai*. Mr. Chalmers translates it:—

"Rejoice, Rejoice, Rejoice. Sacred is this place.
Silence, Silence, Silence, keep for the God Rongomatane.
True, O Rongomatane, Rejoice we shall for the growth of the land, the growth of the land, the growth of the land. Enough.
Shout, O Foundation-land Atia, and rejoice we shall for the growth of the land, the growth, &c.
Shout, O Foundation-land Avaiki, for, &c.
Shout, O Foundation-land Itinui, for, &c.
Shout, O Foundation-land Papua, for, &c.
Shout, O Foundation-land Avaiki, for, &c.
Shout, O Foundation-land Kaporu, for, &c.
Shout, O Foundation-land Manuka, for, &c."

The names Manuka, Kaporu, and Avaiki, are how Rarotongans now pronounce Manua, Upolu, and Savaii, islands of Samoa. But they say that the Savaii of Samoa is not the original Avaiki, it was in *Atia*. It seems useless at present conjecturing what Atia or Itinui may be, the natives know nothing of them; but the reader may be warned against thinking that *Atia* is doubtless *Asia*, for any Mahori would pronounce Asia as *Ahia*, except a Samoan, who could say *Asia*. It is only possible a Tahitian, who uses the *t* so frequently, might call it *Atia*.

Here is another legend of Rarotonga, also preserved and translated by Mr. Chalmers literally:—"An ancient saying whence sprung the people of Rarotonga, and of all the lands about, including Tahiti, Amoa, Tongatapu, Enua manu (Bird Land), &c. Iterangiora was the great chief of the journey from Atia; he was the child of Tairi-tokerau, and Vaieroa was his mother. The god Tongaiti was angry with the parents, because they had caught and eaten the eel Maoro, of the water Vaiaritengaungana. Tongaiti rained down a great rain, and the waters of the Vaiaritengaungana became much swollen. Tairi-tokerau and his wife were carried away to sea. After many adventures they made land: this was Enua Kura (Red Land), or Papua. Here they found their son Iterangiora before

them. He had made a canoe out of human bones, the bones of Vatea, and gone to sea; there he had picked up a priest, and after many adventures had also reached Enua Kura. When they had been long on Papua the people split into two parties; one party carried off the gods, and the other party remained without any gods." The legend proceeds that the same Iterangiora discovered Samoa.

Now this is evidently more a fable than a legend. Iterangiora was the hero, who seems to have conducted many migrations which must have occupied generations and centuries; he is probably to Rarotongans what Montezuma was to ancient Mexicans, or Peter the Great to Russian peasants. His mother's name is *Vaieroa*. Vai signifies *water*, and *roa* signifies *tall*, or possibly *deep*. His father's name was Tairi-tokerau. *Tokerau* is the name of a wind, and *tairi* means *to decline*, or *down*. So that this hero, whose own name may be freely translated as *Heaven-sent*, was the child of the winds and the waves. Tokerau requires explanation. In Rarotonga and all groups and isles towards Tahiti it signifies west or north-west, or any wind from between W. and N. by W. In Tonga and Samoa it signifies east. In the Union group, called by natives the Tokelaus, the inhabitants worshipped Tui-Tokelau as their chief deity. Wilkes asked them if they did not worship Tangaloa, and they were horrified, and said that god was tabooed in their country. Was Tokelau, originally a personification of the Wind, next applied in different islands to different winds? Can this tabu of Tongaloa, the Zeus of the South Sea in the Union group, signify that their gods having neglected them, they were at the mercy of the winds, who kindly led them to these islands, where these people settled, and have since adored the King of the Winds?

Another proof of their migration from the west is the sacred seat in Raiatea. This was a block of wood which came, they said, from Rotuma. Williams mentions this at a period when they could not have heard of Rotuma from white men, and explains the meaning of a frequent expression of sitting on this seat as a figure for peace and festivity. Rotuma is 700 miles west of Samoa, half-way to Papua from Raitea. Another proof is that Samoans and Tongans, from whom the Papuans of Fiji borrowed the legend, declare that their paradise, Bolutu, is in the north-west, that their ancestors came thence, and that their souls return thither on death. Spirits of the dead all take their final leave of earth from celebrated points of land, both of which are on the western extremity of the groups.

That Samoa was the first settlement of the Mahoris is shown by other facts besides all those traditions of emigrations from

it, repetitions of its principal names, and acquaintance of its position, by all the groups to windward and southward; it is shown by the appearance of the people. They are the purest type of Mahoris, comparing them with other islanders, and have those traits which Mahoris call signs of beauty. A Mahori detests hair on his body, generally used to pull it out; does not like a beard; admires a light colour and soft skin, and uses much oil; and detests a *canoe nose*, as he calls it, that is, a nose prominent or aquiline, he admires a small straight nose, rather flat at the point. All these points of Mahori beauty are found much more in Samoa than in any other group. Samoa, they say, is the land of chiefs. But they have a stronger point in their singular use of the sibilant. No other Mahoris use *s*, or such a sound. Their neighbours, the Fijians, and all other Papuans do, but Samoans could not have learnt it in Fiji, or Tongans, who have had far more intercourse with Fiji, would also have acquired it. The Samoans could not have learnt it, since they came without Tongans or others doing so also, therefore they must have brought it with them. Nor is it surprising that they and all Mahoris have such a limited language, for their islands, their wants, and their ideas are all limited. It is remarkable, too, that the New Zealanders, who, some think, left Samoa not more than 600 years ago, can have hardly lost the use of *s* when first visited by Europeans. For the Rev. Mr. Marsden, who could only have acquired native names, then unheard of, from the natives themselves, writes of the chief *Shungei* and the place *Shukianga*, names which are now always called Hongi and Hokianga.

But, although these Rarotongan legends enable us to trace Mahoris back to Papua, they are not Papuans. Besides the fact that these same legends say they only divert them for a time, we have knowledge now of a Mahori tribe being in occupation of the south-eastern extremity of that island. Rau, the Rarotongan teacher already referred to, an intelligent man, says he had no difficulty in understanding the language of these people, and he looked upon them as of his own race. But along the coast, he says, there are black men with frizzly heads, there is a separate mission to them; and in the interior there is a third race, a tall brown people, who, from his account, must be the same as the people of Ceram and North Gilolo described by Mr. Wallace. They are hunters, and only visit the coast to trade.

That this Mahori race are Malays has often been proposed. That they are extremely like Malays, particularly in Samoa, in complexion, hair, countenance, hands, and in their manners may be admitted; but they cannot be Malays, for at least one

reason. Admitting that any departure from the Samoan type has been made by the other Mahoris since their departure from Samoa, which seems to have been so; admitting that any departure from the Malayan type has been made by Samoans since their arrival in that bountiful group of islands, that the soft climate, redundant prodigality of nature, and their maritime habits, have developed the hardy, stunted Malay into the gigantic, luxurious Samoan; still one insuperable objection to Samoans having been Malays yet remains. All that is possible; but it is not possible that a people so migrating should already have a totally different language, with only a few recent Malay words.

Much has been made of these few recent Malay words. There are upwards of a dozen living tongues which have lent our language words, including the Malay and Mahori languages themselves; most of our language is of one origin; 60 per cent. of English words are of Latin origin; yet no one dares to call English a Roman language, it is essentially Teutonic. The proportion of Malay or Javanese words in Mahori is after all not worth noticing; in the dialect of New Zealand, which is as copious as any Mahori dialect, Mr. Crawfurd (Ethnog. Journ., i.) estimates them at exactly 2 per cent., and those not words of pure Malay roots, but principally modern Malay words. In that critique upon the Mahori language Mr. Crawfurd made the following unanswered and conclusive remarks:—

I.—The Mahori uses the aspirate fully, placing it always before, never after, a vowel; consequently it never terminates a word or a syllable.

II.—Every Mahori word ends in a vowel, and no two consonants ever come together, a vowel or a diphthong always being interposed.

III.—The paucity of consonants and frequency of vowels is Mahori.

IV.—The Mahori has two articles, like our own.

V.—The Mahori has a single, dual, and plural number to its pronouns and of second and third persons.

VI.—The construction of the Mahori verb.

In all of these peculiarities the Malay differs. In the construction of words and of sentences the Mahori is essentially different from Malay or Javanese. "Languages," says Professor Max Müller, "however mixed in their dictionaries, can never be mixed in their grammars." Wherever the Mahoris came from, they have no Malay language, but have picked up and retained a few Malay words. Considering the Malays were the great traders of the Indian Archipelago time out of mind, it is not surprising that they gave some of their words,

particularly the cardinal numbers, to many strangers, as far as the extremity of Papua.

But if not Malays, who are Mahoris? They are a cognate race of the same Mongolian stock. Oblique eyes are common in Samoa, and in Tahiti many a Chinese labourer might be mistaken by a stranger for a native. The whole system of *tabu*, closely allied to *caste*, is quite Asiatic. The treatment of women, in forbidding them certain food, or to eat in presence of men, and in their immolation on their husbands' graves, is Asiatic. For although many people have sacrifices over graves to send the departed to the next world with his belongings, yet among races so little advanced as these islanders it is the slave, the horse, or the arms which are sent, not the wife. The Mahoris have also traces of serpent worship, and of stone worship, their monoliths having the shape always peculiar to that worship from Ceylon to Rome, and used in some islands to secure fecundity in pigs, &c. They have in Samoa a sport of pigeon-catching not unlike falconry, and all islanders were excessively fond of cock-fighting.

All these are Asiatic customs and peculiarities. They say they came from beyond Papua. They are very like Malays in appearance. We are thus led to these conclusions: that they are of some kindred race to Malays, of Mongolian stock; that they have separated from that stock as distinctly, and perhaps as early, as the Malays, and always had a distinct language; that they dwelt some time in Papua, and perhaps in other lands of the Malay Archipelago, and there learnt some new words from Malay traders; thence they migrated to Samoa, and have since colonised the South Sea, sometimes displacing Papuan settlers. We have found that on the equator, in migrating northward from Samoa, they met another branch of their own family in the Kingsmill islands, who probably travelled along the Caroline Archipelago from the Philippines, and show another exodus of the same family about the same time. There must have been a considerable people at one time in Atia, driven out by over-population in large numbers, or expelled by conquest; the question now is, where or what are *Atia* and *Itinui?*

June 27th, 1876.

Colonel A. Lane Fox, *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of the following members was announced:—Frederick John Horniman, Esq., F.R.G.S., F.Z.S.; David Greig Rutherford, Esq., F.R.G.S.

The following list of presents was read, and thanks ordered to be returned to the respective donors:

For the Library.

From the Academy.—Memoirs of the Peabody Academy of Science. Vol. I. No. 4.; 6th Annual Report, do. The American Naturalists. Vol. V. Nos. 1 to 12. Vol. VI. Nos. 1 to 12. Vols. VII. and VIII. Nos. 2 to 12.

From the Association.—Proceedings of the Geologists' Association. Vol. IV. No. 7.

From the Society.—Journal of the Bombay Branch of the Royal Asiatic Society. Vol. XI. No. 32.

From the Editor.—Revue Scientifique. Nos. 51 and 52, 1876.

From the Editor.—Nature, to date.

Mr. Walhouse exhibited a collection of iron arrow- and spear-heads from Southern India, on which he made the following remarks:—

A diagram of forms of arrow-heads used in Africa, exhibited by Lieut. Cameron at his lecture on African Ethnology, delivered before the Institute at the School of Mines, induced me to bring forward the selection of Indian arrow-heads now on the table for the purpose of comparison. Most of the larger and broader arrow-heads are used to-day by jungle-tribes in the wilder forest-tracts under the principal mountain ranges of Southern India, the Nilagiri and Palani Hills and the western Ghauts. Four or five of the shapes closely resemble those used in Africa. The larger and heavier leaf-shaped heads, whether broad or narrow, are mostly used by the Indian jungle hunters for killing deer. These men shoot very dexterously and with great force, but do not attempt long shots, for which, indeed, their large and heavy arrows are unsuited. Their arrows are formed from strong reeds, generally over a cloth-yard long, and to us would seem very top-heavy from the size and weight of the head. Perhaps to remedy this the two feathers are large and clumsily tied on. Their bows are of bamboo, of much the same shape and quite as long as the bows of the famous English archers of old, to judge from one or two specimens of the latter preserved in the Tower. The cords are long strips of rattan. Scott says of an archer of the days of the Edwards—

> Well could he hit a fallow-deer
> Five hundred feet or more.

The jungle bow-men attempt no such flights, but shoot from behind trees, rocks, and bushes, lying in wait by narrow deer-paths, by water, and where they know the deer will pass close by—in fact, taking pot-shots as closely as they can. They do

not draw their bow-strings to the ear, nor hardly to the breast, nor take long aims, but twang off the arrow with extraordinary force, holding the bow rather low. Though small and meagre men, the force with which the arrows strike would satisfy one of Robin Hood's men, the shafts going almost through the bodies of the animals. Deer are their principal quarry. I have heard of their killing tigers. I do not know of their using poison.

The smaller arrow-heads exhibited are principally ancient forms, not now in use, but employed formerly in war. Those grooved along the sides, or roughened under the point, were charged with a viscous poison. There are many varieties of the form with open centres, which are said to have been peculiarly dangerous, the flesh closing into the head as badly as round a barb. The crescent-shape is common both to India and Africa, and we hear of it in Roman times; the blunt, pointless heads are said to have been used for killing birds, without drawing blood or injuring the plumage. In the days of the Rajahs, when bows and arrows were in common use, the Hindoos gave full play to their fancy in devising endless shapes of arrow-heads, some very elegant, and some fantastic, probably more formidable in appearance than execution.

The President, Capt. Dillon, and others, made some observations on the exhibition.

Miss Buckland communicated the following note, and exhibited some human and animal remains found at Bath, 1870:

In excavations for making a large vaulted tank, and for the foundations of the railway viaduct, within the premises of the Bath Gas Light and Coke Company, a skull has been found, imbedded in gravel and silt, at a great depth below the surface, together with several bones of animals, portions of antlers of red deer, and fragments of trees, principally the willow and oak, such as are commonly found in the substrata of the Avon Valley, and other valleys similar in geological character. In these excavations the old water-worn rock and shale, formerly the bed of the ancient course of the river, at depths of from 20 to 25 feet below, and 100 feet inland from the present bank, is exposed to view. The strata of rock (blue lias, having a south dip) are scoured off in steps, and overlaid with gravel, silt, and alluvial deposit, interspersed with shells, trees, and bones. The skull, with a small fragment of rude pottery near it, was found imbedded in this silt and gravel, within 3 ft. of the rock bottom, and about 20 ft. beneath the general surface-level of the ground. Its discovery in good preservation at such a great distance and

depth from the present channel is remarkable, and its antiquity may be inferred to be great. A careful examination of the deposits, which clearly must have been coincident, indicates the subsequent changes that have taken place in the surface, and affords data for the guidance of those who are interested in such research. The workmen engaged say that a gold bronze spear-head was found near the same spot some 30 years ago, when the present tank (which is now being deepened) was being excavated. If this be true, the relic will doubtless have been preserved, and would add still further interest to the present discovery, and serve to throw more light on the date and extent of the changes worked by the old Avon River in and around this city. The articles found are at present carefully preserved at the offices of the Gas Company.

The PRESIDENT and Mr. J. E. PRICE made some observations on the remains, which included bones of homo, bos longifrons, deer, goat, calf, &c.

Mr. Hyde Clarke then read the following paper:

NOTE *on* SERPENT *and* SIVA WORSHIP *and* MYTHOLOGY *in* CENTRAL AMERICA, AFRICA, *and* ASIA. By HYDE CLARKE.

THESE observations are not intended for a complete treatise, but merely to put on record facts so far as they have been obtained, nor is it intended to draw any absolute conclusion from them, but to indicate materials for inquiry and examination.

In the "Proceedings of the American Philosophical Society" (June and December, 1875, vol. xiv. p. 483) is an elaborate paper on "The Indian Tribes and Languages of Costa Rica," by Professor W. M. Gabb. This paper, which was read before that Society on August 20th, 1875, is most deserving of attention, as well in its anthropological treatment of the subject, as because of the relations of the tribes. It deals with tribes on which the distinguished traveller Von Scherzer obtained little information and on which Bancroft in his great work supplies imperfect matter. Thomas Belt has also visited the country. This is indeed a little book, and, besides the other information, contains copious vocabularies of the Bribri, Cabecar (2), Tiribi, Terraba, and Brunka or Boruca.

This book having come under my notice, led me to make comparisons with regard to the relations of the languages, which, as usual, proved to be with the Old World.

These Indians are living on both the Atlantic and Pacific slopes of Costa Rica, in Central America, and are rapidly diminishing and, under Spanish influence, losing their customs and language. A century ago the population was of thou-

sands, now the Changinas are nearly extinct. The Bribris and Cabecars have lessened one-half within twenty years, and now the numbers are:—

Tiribi	103
Uren	604
Bribri	172
Cabecar	128
The Valley	219
Altogether ..	1,226

Another hundred will cover the Changinas and outlying Cabecars.

It must not be omitted that many of these natives are very light in colour and are regarded as whites. One fear, as a consequence of impiety, is being termed black.

This remnant, these tribes of a few scores, are the keepers of knowledge, languages, and legends of the past, which their forefathers brought here thousands of years ago. Some Costa Rica natives still use stone axes set in wooden handles, and those under notice in language belong to the stone age.

The languages collected by Mr. Gabb each possess a vocabulary, which he estimates at between fifteen hundred and two thousand words, a larger number than is vulgarly supposed to be used by savages. The several languages, although differing, are shown by Mr. Gabb to be mutually connected on philological examination, and the further evidence obtained by me confirms this.

As the Bribri is one ground on which the mythological observations rest, it is desirable to enter upon the question of its relations. These could be most readily effected with the African languages of Kœlle's "Polyglotta Africano," as that work gives more words of culture than the Indian collections of Dr. Hunter, Sir George Campbell, and Colonel Dalton. Indeed, in the present advance of the studies of culture, the Indian vocabularies founded on Brown's basis are by no means calculated to afford results. They contain words of little value in this respect and omit those that are typical. We want much new comparative vocabularies, which will deal less with grammatical points, and provide for names of animals, weapons, tools, &c.

In my comparisons much help was obtained from Mr. Gabb, for in his vocabularies he has carried out a very useful work, in registering the composition and meanings of some of the words. This has been done in some of the Australian vocabularies, but is generally neglected.

It is, however, a process of great importance, and is the

foundation for psychological philology, an important branch of anthropology, which is now growing up in strength, but is little appreciated by men of science. Dr. E. B. Tylor, so far as he comprehends philology in his treatises on culture, has collected many useful observations. It is when we learn the thought which governed the application of a word that we know how the human mind operated in the prehistoric epoch, and we are thus building up a history of the human mind. This is indispensable for understanding the beginning and progress of the higher culture when we come, for example, to an epoch so remote as when, in the Mediterranean region, there were at once written monuments of Akkad, of Egyptian, and of Khita (Hamath), besides others we know not yet of, and those which must have existed among the Peruvians, the Mayas, and the Mexicans.

Into this school of psychological philology the Germans are entering. Steinthal has expressly dealt with it in his "Philology, its History and Psychology;" and again with Lazarus, in the introduction to their "Journal for Anthropological Psychology and Philology." Indeed this study has reached the stage of a journal, while in England philology in its higher forms cannot be said to have a society or a journal, and is scarcely tolerated by anthropologists, by whom psychology is little pursued. At the British Association it became a question with naturalists whether philology is a branch of science.

As an evidence of the pursuit of psychological philology in Germany a new example is that afforded by the first volume of the "Coptic Researches" of that distinguished scholar, Dr. Carl Abel, which is almost wholly devoted to the investigation of the words for Truth and Right in the Egyptian and Coptic languages. In 1859 Dr. Abel began this career by his work on "Languages as the Expression of National Thought," and in 1871 produced a remarkable treatise on the place of words in Latin construction.

The charm of Professor Max Muller's popular dealings with philology depends on his dealings with these conjoint relations of language and thought in the Aryan languages, and their application in mythology. It is not from want of learning on his part that his labours have by anthropologists been regarded rather as belonging to polite literature than to their science.

One of my objects in my labours on "Prehistoric Comparative Philology" was to illustrate this matter, in direct connection with anthropology, further than Dr. Tylor had done. There will consequently be found there a table of words which are equivalent to each other, and since then my collections have

increased. Mr. Gabb's notes enabled me at once to recognise a number of his equivalents as belonging to the prehistoric epoch, and as he gave many which were new, they afforded a good opportunity for testing them with the African.

Thus were used axe, equal to shoulder-blade; leaves of a tree for its hair, as well as leaf for tongue; comb for hair-scraper; shirt for skin; bowels for dung-snake; face for round, sun and moon; handle for knife, as the knife's sister; needle for thorn; rainbow for snake; shield for shoulder; river mouth, as we call it, being river tail.

While examining the equivalents, it appeared the words were sometimes the same in Bribri and in the African, so that a more detailed examination became needful, which showed that Bribri and its brethren distinctly belonged to the Old World.

The names of animals show this well:—

Animal Names of Costa Rica.

Iguana.
Cabecar, boa.
„ ba.

Lizard.
Bute (Afr.), mboa.

Chameleon.
Boko (Afr.), boe.

Frog.
Cabecar, bukwi.
Landoro (Afr.), gbegbe.
Bribri, wem.
Gbese (Afr.), wian.
Kamuku (Afr.), uwama (monkey).
Bribri, koru.
Aku, &c., akere.
Landoro (Afr.), koro (lizard).
Landoro (Afr)., koara (monkey).
Tiribi, orang.
Opanda (Afr.), oranga.
Orongu (Afr.), ironge.
Bribri, koru.

Leopard or Tiger.
Brunka, kura.
Kasm (Afr.), guero.
Bribri, namu.
Nupe (Afr.), nampa.
Bribri, dure.
Nya, Nya, Sandeh (Afr.), nderu (lioness).

Snake.
Bribri, kebe.
Cabecar, kebi.
Kisi (Afr.), kewo.
Tiribi, bgur.
Pika (Afr.), kuredi.
Brunka, tebek.
Landoma (Afr.), abuk.
Bribri, kwa.

Butterfly.
Kano (Afr.), koowa.
Krebo (Afr.), kerakue.
Tiribi, kwong-wo.
Basa (Afr.), kongo.

Bird.
Tiribi, sinwa.
Kumu (Afr.), sin.
Terraba, senowa.
Brunka, dutsut.
Bisfade (Afr.), gunsudu wasudu.

Macaw and Parrot.
Bribri, kukoug.
Cabecar, kukwa.
Bayon, &c. (Afr.), kuakot.
Bribri, pa.
Cabecar, pa.
Bagba (Afr.), pakue.
Cabecar, kwa.
Meto (Afr.), ekuei.
Tiribi, kuskwong.
Ntere (Afr.), nkushu.
Terraba, kishkwong.
Babuma, &c. (Afr.), nkusho.

Bat.
Bribri, dagur.
Aleje (Afr.), kore.

Deer and Goat.
Bribri, siri (also arrow).
Terraba, shuring.
Tene (Afr.), sireme.
Gbese (Afr.), sire.
Kuri (India), siri.

Monkey.
Bribri (C. Amer.), sar.
Cabecar (C. Amer.), sarmatka.
Kuri (India), sara.
Japanese, saru.
Ankaras (Afr.), sirowa.
Basa (Afr.), doe.
Terraba (C. Amer.), do.
Tiribi (C. Amer.), duigo.
Aku, &c. (Afr.), edu, edo.
Juku (Afr.), do.
Bribri (C. Amer.), wib.
Terraba (C. Amer.), bib.
Tiribi (C. Amer.), bibgo.
Tiribi (C. Amer.), yaigo.
Tiribi (C. Amer.), duigo.
Kambali (Afr.), wiamo.
Okam (Afr.), iwig.
Mbarike (Afr.), abago.
Biafada (Afr.), gidegwa.
Toronka (Afr.), go.

Toma (Afr.), koe.
Gadaba (India), gusa.
Kol (India), gye.
Garo (India), kouve.
Annam (Asia), khi.
Yerukala (India), kote.
Brunka (C. Amer.), uli.
Eki (Afr.), aile.
Igala (Afr.), ailo (chameleon).
Brunka (C.Amer.), nong.
Dumi (Nepaul), nuksu.
Dhima (India), nhoya.

Elephant—Tapir.

Bribri (C. Amer.), nai.
Cabecar (C. Amer.), nai.
Brunka, nai.
Sobo, &c. (Afr.), eni.
Wolof (Afr.), nyei.
Pulo, &c. (Afr.), niwa.
Yerukala (India), ana.
Tamil, anei.
Tiribi, so.
Ngoala (Afr.), eso, so.
Nki (Afr.), eshua.
Aleje (Afr.), esuo.
Naga (India), tsu.
Japanese, zo.

Alligator.

Tiribi (C. Amer.), ku.
Brunka (C. Amer.), kuu.
Bulom (Afr.), kiu.
Timne (Afr.), akui.
Kosi (Afr.), kuiyo.

The name for elephant is enough to mark the connection. As the immigrants had not the elephant they gave his names to his brother the tapir. Thus we find the same names from Central America to Japan. It has been before pointed out by me that there are many names for elephant, and widely spread about, as if the elephant in the prehistoric epoch was better known than in later times. The names for monkey are as widely extended; so we get those for iguana, frog, alligator, bat, deer, and macaw.

The names recognised for objects of culture include arrow, knife, bow, calabash, pot, bed, salt, house, door, skin, cotton, maize, tree, leaf, forest, drum, rope, chair, sand, smoke, coal, dew, rain, night, day.

Central America (Costa Rica).

Arrow.

Bribri, sari.
Tiribi, sure.
Bulom (Afr.), sor.
Timne (Afr.), asor.
Kol (India), sar.
Sanskrit, sara.
Brunka, tunkasa.
Vei (Afr.), tungba.
Nyamba (Afr.), tingowe.
Naga (India), takaba.
Cabecar, ukawu.
Bribri, kabut.
Ondo Aku (Afr.), akofa.
Goali (Afr.), kowi.
Nyamlan (Afr.), ngowe.
Banyun (Afr.), gubande.
Limba (Afr.), kobegare.
Houssa (Afr.), kibia.
Naga (India), takaba.

Bow.

Cabecar, ukaibeta.
Koro (Afr.), buta.
Ntere (Afr.), buta.
Tiwi (Afr.), bada.

Knife.

Tiribi, sugro.
Ashantee (Afr.), sukare.
Cabecar, taberi.
Barba (Afr.), wobaru.
Pulo (Afr.), labi.

Calabash.

Bribri, koku.
Akua (Afr.), koko.
Bola (Afr.), kekanda.
Bribri, kyong.
Vei (Afr.), kungo.
Banyun (Afr.), gukonje.
Diwali (Afr.), ekanga.
Brunka, junkra.
Kamuku (Afr.), sikoara.
Barba (Afr.), karu.
Opanda (Afr.), okodo.
Marawi (Afr.), kika.
Aukaras, kagudu.
Ndob (Afr.), ko.

Pot.

Brunka, kwate.
Landoro (Afr.), kouhwe.
Krebo (Afr.), kowoya.

Bed.

Bribri, akong.
Bamom (Afr.), akon.
Bayon (Afr.), akun.
Njo (Afr.), ekun.
Tiribi, bukru.
Mende (Afr.), buku.
Cabecar, kapugru.
Opanda (Afr.), igberiku.
Gbe (Afr.), gbeko.

Door.

Bribri, shku (ku, mouth).
Toronka (Afr.), ko.
Mende (Afr.), ko.
Aku, &c. (Afr.), eku.
Musu (Nupe) (Afr.), zoko.
Kuru (Afr.), koo.
Yasgua (Afr.), nko.

House.

Bribri, &c., hu.
Tumbuktu (Afr.), hu.
Whidah (Afr.), ho.

Mahi (Afr.), huo.
Ihewe (Afr.), oa.
Boko (Afr.), ua.
Kol (India), oa.

Cotton.

Bribri, sawi.
Ashantee (Afr.), sawa.
Aku (Afr.), owu.

Skin.

Bribri, pa.
Nupese (Afr.), epa, pata.
Kumi (India), pe.
Tiribi, kwota.
Ndob (Afr.), koat, koanyu.
Cabecar, kwo.
Bribri, ikwo.
Murundo (Afr.), ngowo.
Aleje (Afr.), okue.
Tiwi (Afr.), ikuawuro.
„ kuare.

Navel.

Tiribi, tuwa.
Bribri, mowu.
Isoama, &c. (Afr.), otuwe.
Bornu (Afr.), dabu.
Bode (Afr.), sabu.
Aku, &c. (Afr.), iwo.

Leaf.

Bribri, ku (also tongue).
Isiele, &c. (Afr.), akukuo.
Gondi (India), aki.
Pulo (Afr.), hako.
Tiwi (Afr.), akoa, ika.
Kra (Afr.), koagi.
Cabecar, kargu.
Bribri, karku.
Filham (Afr.), kartoet.
Kaure (Afr.), harugo.

Forest.

Cabecar, karga.
Gbe (Afr.), kurakuli.
Filham (Afr.), karamba.
Bornu (Afr.), karaga.
Akarakura (Afr.), egor.
Tiribi, korgarui.
Bribri, kongyika.
Bode (Afr.), kunu.
Udom (Afr.), akanugbe.

Devil.

Bribri, bi.
Udom, &c. (Afr.), ngbolo.
Nupe (Afr.), abili, beli.

Maize.

Bribri, ikwo.
Cabecar, ikwo.
Nupe (Afr.), kawa.
Opanda (Afr.), agwa.
Eafen (Afr.), nkui.
Mbe (Afr.), ekui.
Brunka, kup.
Kupa (Afr.), akaba.
Landoma (Afr.), kebabu.

Tree.

Bribri, kar.
Tiribi, kor.
Toma, &c. (Afr.), guru.
Bambara (Afr.), koroma.

Drum.

Bribri, sebak.
Pulo (Afr.), baga.
Konguan (Afr.), baka.

Rope.

Bribri, tsa.
Noojin (Afr.), sei.
Pika (Afr.), tsoli.
Juku (Afr.), dsa.
Bribri, duki.
Okuloma (Afr.), digi.
Ndob (Afr.), ndek, ndik.

Chair.

Bribri, kru.
Aro (Afr.), nkoro.
Gajaga (Afr.), korondamo.

Sand.

Bribri, tsoug.
Cabecar, ksoug.
Basa (Afr.), atsikono.
Nupe (Afr.), jikana.
Bribri, chika.
Kasauj (Afr.), kisegelo.
Tiribi, erasho.
Aku, &c. (Afr.), irai.

Smoke.

Tiribi, nyo.
Guresa (Afr.), nyusha.
Yula (Afr.), nyue.
Nupe (Afr.), nawu, nau.
Legba (Afr.), nyos.
Bribri, shkono.
Yala (Afr.), noala.
Basa (Afr.), inshiko.

Coal.

Cabecar, jikowo.
Ebe (Nupe) (Afr.), jikara.
Cabecar, jikowa.
Abaja (Afr.), ujekolono.

Dew.

Cabecar, moriu.
Guresha (Afr.), maru-lam.
Bribri, moweli.
Mose (Afr.), worodo.
Tiribi, tomboria.
Mandengo, &c. (Afr.), buru.
Adampe (Afr.), debuloku.

Rain.

Tiribi, shunyo.
Toronka (Afr.), sanyiyi.
Brunka, jo.
Mandengo, &c. (Afr.), sanjo.
Ujo (Afr.), osuo.
Goali (Nupe) (Afr.), sheogo.
Bribri, kawni.
Cabecar, kani.
Jelana (Afr.), keah.
Limba (Afr.), koyon.

Night.

Tiribi, shke.
Goali (Nupe) (Afr.), suko.
Ngola (Afr.), osoko.
Deoria Chutia (Asia), sakokoi.

Day.

Cabecar, kanyina.
Soso (Afr.), yanyina.
Brunka, daboi.
Nhalemoi (Afr.), boi-sale.

Salt.

Bribri, deje.
Undaza (Afr.), leje.
Nupe (Afr.), esa.
Adampe (Afr.), eje.

God.

Bribri, sibu.
Terraba, zubo.
Udom, &c. (Afr.), eshowo.
Nupe, &c. (Afr.), soko.
Mbofia (Afr.), juku.
Kabenda, &c. (Afr.), nzambi.
Ndob (Afr.), nzob.

These comparisons brought me to the names for god and devil. As sibu, the name for God in Central America, was represented in Africa, it was consequently prehistoric, and afforded an early, if not a primary, fact in mythology. This investigation was consequently pursued, and the following table will exhibit the main facts.

God.

Ekamtulufu (Afr.), eshowo.
Udom (Afr.), eshowo.
Ntere (Afr.), njami.
Mutsaya (Afr.), ndzama.
Nyamba (Afr.), ntsuma.
Kasanj, &c. (Afr.), nsambi.
Babuma, &c. (Afr.), njambi.
Kabenda, &c. (Afr.), nzambi.
Nyombe (Afr.), ndzambi.
Nupe, &c. (Afr.), soko.
Eshitako (Afr.), soko.
Goali (Afr.), siogoli.
Musu (Afr.), seangoi.
Isoama, &c. (Afr.), juku.
Legba, &c. (Afr.), esho.
Mende (Afr.), ngewo.
Melon, &c. (Afr.), [nyama.]
Bribri (C. Amer.), sibu.
Cabecar (C. Amer.), sibu.
Tiribi (C. Amer.), zibo.
Terraba (C. Amer.), zubo.
Brunka (C. Amer.), siboh.
Phrygia (Asia), saba (sabazios).
India (Asia), siva, shiva.
Greece (Europe), seba (worship).
India (Asia), kali.

Devil.

Sarar, usawe.
Soso, masibo.
Okuloma, sibiribo.
Kasanj, nsumbi.
Undaza, ujumbi.
Marawi, joka.
Pangela, namatubia.
Aro (Afr.), iguakala.
Boko (Afr.), kali.

Phallus.

Bribri, kibiwo.

Snake.

Fulup, &c., siweba.
Tene, masiwo.
Dewoi, zebe, zewe.
Gajaga, samako.
Muntu, lidsoga.
Marawi, njoka.
Kisi, kewo.
Aku, ejo.
Undaza, tadi.
Mutsaya, tade.
Bribri, kibi.
Cabecar, kebi.
Brunka, tebek.
Sak (India), kapu.
Tharu (India), sapa.
Pakhya (India), sapa.
Chentsu (India), sap.
Kooch (India), samp.
Japan, hebi.
Vayu (India), habu.
Java, sawer.
Gondi, &c. (India), todas.
Basque (Europe), suge.
Landoro, &c. (Afr.), kali.

Idol.

Krebo, kusewe.
„ sewe.
Vei, nowe.
Igala, odsibo.
Kiamba, zewa.
Abaja, ishiafa.
Opanda, odsibo.
Yala, ejibe (greegree).
Sobo, sebo (sacrifice).
Egbir (sacrifice), esewo.
Lubulo (sacrifice), ndzumbi.
Sobo, ejo.
Abandi, ngafu.

Heaven, Sky.

Ekamtulufu, nebo.
Mbofon, sowo-nebo.
Udom, lebo.
Aleje, lebue.
Nyombe, ndzambi.
Lubulo, koandzambi.
Isoama, juko.
Kra, juku.
[Tibetan, nam.]
Russian, nebo.

Navel, Belly.

Wun, nawo.
Musu, nubo.
Aleje, nefo.
Kamuku, liuwu.
Yala, lepu.
Gajaga, sumpo.
Kasanj, mujimbi.
Bode, sabu.
Tiwi, ijombo.
Muntu, masaku.
Baghrmi, jiwili.
Kandin, jibia.
Houssa, jibia.
Juku, juko.
Houssa (belly), jiki.
Kandin (belly), jik.
„ tedis.
Isoama, otuwe.
Abaja, otubo.
Bribri, mowo.
Tiribi, tuwa.
„ (belly) bowo.
Brunka, tuwong.
Soso (Afr.), kuli.
Abandi (Afr.), ngoli.

Fish.

Kisi, suwa.
Fulup, siwol.
Kisi, siwo.
Dewoi, zemi.
Gurma, jamu.
Goali, siowo.
Banyun, jokorot.
Mimboma, zimpfu.
Musentandu, zimbizi.
Muntu, usomba.
Marawi, tsomba.
Bribri, nima.
Japanese, siwo.
Tamil (India), chepa.
Finnish, kala.

Sibu or Sowo being the god, the name was of course found for spirit or devil, such degradations of an older god being a

leading fact in mythology. It was also found under the same conditions as idol, sacrifice, and greegree. The conformity of god and sky is a mythological fact well known in Aryan mythology, and indeed it is the basis of the common school of weather mythology, in which the phenomena of the mythologies of the whole world is dealt with in a favourite method. It is, however, a prehistoric fact, predominating Aryan and later operations, and it applies to Sibu.

In searching for the meaning of the name Sibu, reasons led me to seek in that for navel, and it will be found fully represented. Navel and belly words are intermixed. The bowel, however, takes the name of a snake, and this led me to look for snake as an equivalent. Snake is further equivalent to fish.* The rainbow is also a snake in Bribri. Thus we have a whole apparatus for the mythology of serpent worship and the powers of nature.

On examining eastward for sibo, or sowo, and nebo, many indications present themselves. Nebo or Nabo is the name of a Chaldean god (says Dr. W. Smith), a well-known deity of the Babylonians and Assyrians. In Babylonia Nebo held a prominent place from an early time, and his name forms part of the names of many kings, as Nebuchadnezzar. It is extraordinary that the population of Nebaioth, in Arabia, is found closely connected with the Sabæans.

The question arises whether the rock-monument of Niobe on Mount Sipylus, near Magnesia and Smyrna, may not have been a Nebo. The ancient writers dispute whether it was a man or a woman. The name Sipulus, I thought, was Suburu, Accad, a statue ("Prehistoric Comparative Philology"), but it may also relate to sibu. Every trace of speculation is worth following. Nebo was a mountain name in Palestine.

Seba, in Greek, signifies worship, adoration, veneration, and is worthy of notice as indicating a possible relation to the ancient worship, and with which the term Sabazios may be connected.

There was an Ethiopian god, Assabinus, that is, Assabi or Sabi. Seb, Seb-ra, or Sobok, was a god of the Egyptians, equivalent to Khronos.

Saba was a very old Arabian king. (Rev. Prof. Campbell, "The Hivites," p. 28.)

One of the Hebrew names of God is צבאות, Tsebaoth or Sebaoth. This is commonly translated Lord of hosts or armies, but it is more possibly Seba. It is to be observed that there are doubts among the Talmudists whether Sebaoth is properly a Hebrew name of God, and whether it is not profane. Turning to Zeus and Diaus, a new conjecture for their origin presents itself.

* The words also cover the phallus.

In Smith's and the other dictionaries, is to be found Sabasius or Sabazios, and the materials are most confused. He was made into Jupiter Sabazios or Dionusus Sabazios (Bacchus). Re-constructing the materials, we find Saba, an old god of Phrygia, whose worship extended over Asia and Greece. He was torn by the Titans into seven pieces. Serpents figured largely in the initiations, midnight mysteries, and processions. A golden serpent was dropped into the bosom of the initiate, falling out of the bottom of the frock. Mixed up in time with the later mythology, it was a religion of the populace, and by the more scientific was found to belong to Zeus and Dionusus. Demosthenes looked upon it as disreputable.

With these stepping-stones we come to India, and we find Siva as a member of the Hindoo Trimurti under most peculiar circumstances. He is, in most cases, co-equal with Brahma and Vishnu, and his powers and properties are intermingled with theirs. His wife is Kalì. They hold their own to this day as popular gods.

Applying our material to deal with Siva or Shiva and Kalì, we find not only the former name but the latter in Africa. The connections are those of Siva. Many of the Hindoo gods are decorated with snakes, for such is the inheritance of serpent-worship, but Siva is more particularly so provided.

There are two Hindoo legends of the Creation, but that most popularly depicted represents Vishnu sleeping on a serpent, Ananta, on the face of the waters, after the annihilation of a former Creation. From his navel springs a long stem ending in a lotus, and from this Brahma is born, who produces Siva. The three are, however, brothers born together. Thus the belly is the seat of creation, and from the navel proceeds the stem, which must be assimilated to the snake of the bowel. We have the conformity in this main Siva legend of the god, his wife, of the navel, and the snake. In the present state of Siva worship we have the increments of various ages and of various races, corresponding to those which in a shorter period affected Sabazios in Phrygia and Greece. We are justified in regarding Siva and Kalì as a prehistoric legend, which has survived in Hindoo mythology and been dealt with by a later dominant race.

Turning back to Central America, we find in the scanty gleanings of Mr. Gabb many things very suggestive. Sibu is the one god, but he has twenty names. The people were very indignant at the proposition that there was more than one god. A distinct line is drawn between Sibu and the numerous local or individual spirits, demons, or devils and ghosts of the dead. So, too, Capt. Hay says that in Akem, in the corresponding

district in West Africa, the god is one god. This is a very remarkable feature corresponding to the cardinal doctrine of Hindoo mythology, and it is suggestive of a widely-spread doctrine in the early prehistoric epochs. The divinity is one, but he is the spirit of all nature in every form, and in every development of the operations of the natural world. Each man was a manifestation of him.

The staff of the priests is gathered with care and devotion from a mystic timber, because it is guarded by a venomous snake. A circumstance particularly noticed by Mr. Gabb is that the songs of the priests are in a peculiar language, and although most anxious to obtain information on this head, he was most unfortunately prevented.

A curious fact must not be omitted, although not immediately relevant. In Santa Domingo there are no venomous reptiles, but, says Mr. Gabb, a poisonous plant is called kibe, which is the same as the Bribri kebe, snake. Shiva or Shivatt was the Mexican god of war.

In the table of Sibu names, a few words belonging to the series are introduced, but, as a general principle, the names of the great local god of African tribes conform with navel and snake, like sibu.

With regard to the tree, it is good to note some points which illustrate its worship and the doctrine of Dryads. With us we talk of the arms of a tree, but in the complete notion of a tree in Africa and Central America there is the trunk, the head, the arms. The leaves figure as fingers or as tongues. In the latter relation we have the idea of the Dryads speaking. The roots, however, have their distinct meaning. In Africa they are toes (see table), in Central America the buttock of the tree. Thus the tree is a complete being on the model of a man, and animation is only a stage forward.

So as to the river. We are familiar with its heads and arms, and in the prehistoric epoch it had its heads and arms, but what we call mouths are in Bribri the buttock or rump. In the case of the river it was most easy to anticipate its possession of a life, and the stage of its worship was a sequence to be looked for.

	Root.	*Toe.*
Gbe (Afr.)	gbire	bie-gburo, G. gbere, Nupe
Adampe	atike	dide, A.
Kasm	nade	nanina, K.
Sobo	owuse	isiawo, S.
Oloma	ugo	ikanena, O.
Gura	kurugulo	kieroguro, G.
Boko	gesane	kisa, B.
Konguan	nkanok	henuraka, K. ekinafien, Mbarike

	Root.	*Toe.*
Pajade (Afr.)	pukade	pukan, Bola (Afr.), &c.
Soso (Afr.)	sankei	senkonne, Mandingo.
Tene (Afr.)	baride	berai, Gbando.
Soso(fing.)(Afr.)	bile	bulo, Mandingo (Afr.)
Koama (Afr.)	nakel	nika, Kiamba (Afr.)
Isoama (Afr.)	oboroko	ngbaroga, Ishieli(Afr.)
Yorubo	egbogi	agbalogba, Abaji.
Undaza	moakanga	moaku, Ndobu.

Toe is of course in many cases = finger.

The seat of Sibu is in the sky, in the zenith, that is, in the navel of the day, and its sphere or belly.

In Bribri, the rainbow is a snake of the sky for the day, and we may expect to find that the milky way is the snake of the night. So we witness the rainbow serving as a road for gods and their messengers, and again Watling Street or the milky way serving as their road.

As a further instance of the light which may be obtained from African sources, to illustrate the origin of mythology, a more direct example than that of Sabazios may be taken.

The mythology of Greece and Asia Minor is usually mixed together, and treated as of one type, and hence there is a difficulty in ascertaining its true relations. That of Thebes, in Bœotia, if separated from the other centres, affords materials useful for comparison.

The names of the kings of Thebes, their wives and children, form a remarkable series.

		Children.	
Cadmus	= Hermione.	Ino.	Agave.
		Echion.	
Athamas	= Nephele.	Phryxus.	Helle.
„	= Ino.	Learchus.	Melikertes. (Palæmon.)
Amphion	= Niobe.		
Echion	= Agave.	Pentheus.	

In the Caucasus we have

Prometheus.	Deucalion.	
Epimedes = Pandora.		Pyrrha.

In Phœnicia we have

Poseidon = Libya.	Agenor.	Belus.

Elsewhere we have

Herakles = Hebe.

A similarity of names is shown in

Adam	= Khaveh.	Cain.	Abel.

The incidents of the Theban and allied legends have many points of similarity. The men are founders; there is a creation (Cadmus, Prometheus); a woman is created (Pandora); the

woman is the cause of evil (Ino, Pandora, Agave); nakedness and dress are referred to (Hebe, Pandora); there is a contest with serpents (Cadmus); they are subjected to exile; the son is killed and the children are unfortunate (Palæmon, and children of Niobe, Cadmus, Echion, and Libya).

In Africa the names of the women of these legends are found in some allied roots.

Khaveh, Hebe	Ewa (Ira)	Rib	Egbe.
Khaveh, Agave	Kafef	,,	Filham.
	Gafe	,,	Bode.
Agave	Eguha	,,	Yoruba, &c.
	Eguaya	,,	Ota.
	Agelag	,,	Abaja.
Khaveh	Efe	,,	Bini, &c.
Hebe	Aba	,,	Kupa, &c.

Nephele, Pandora, Niobe, and Ino, can also be distinguished. They are also names for sisters or women. Abel (Mbale) and Cain (Kana) are names given to elder and younger brothers.

Rib is the root, which is equivalent to side, and thereby to brother and sister. So, too, in Accad, bab signifies side, rib, and mother. Thus it is easy to conceive Eve, or Agave, being treated as the rib or side. This word Gafa, or Gaba, is also a negative, and in some instances signified night. Thus a community of idea of night or sleep, rib, and death and evil, is provided in the words as the material for legend, and with the two words for elder and younger brother, a community of legend was prefigured in prehistoric times, which could be distributed in the various regions of the earth.

Discussion.

Councillor de Scherzer: I have listened with great interest to Mr. Hyde Clarke's able paper; the more so as I have had the good luck to explore the whole of Central America from Costa Rica to Guatemala, about 1,500 English miles, partly on foot and partly on mule's back, during nearly two years. I have visited several of the tribes which Mr. Hyde Clarke mentions in his paper, but unfortunately I never came into contact with the Tiribis and Bribris upon which Mr. Hyde Clarke's attention was especially directed. They must be a very small tribe, numbering hardly more than a hundred individuals. I saw some individuals of the Viseitas, Blancos, Valientes, Guatasos, and Talamancas, who live between the Rio Chirripo and the east coast, and also between the Rio Zent, Rio Blanco, and Boca del Toro. Most of these tribes have been baptized, but by no means converted. The Catholic missionaries of the 16th century attached much more importance to the *quantity* than to the quality of their neophytes. A Franciscan monk of that epoch, Fray Bobadilla, boasts, in one of his letters to his Superior, of having baptized in Nicaragua, within nine days, not less

than 53,000 Indians. Such a result could only have been obtained in a wholesale manner by means of a fire-engine, and could hardly have had any effect upon the mind. The Indians of the present day preserve some notion of the Catholic legend of the creation of the earth, of the first pair, of life after death, &c., but they can by no means be considered as being Christians. They live in polygamy and have two or three wives, who do all the hard work and are treated like slaves. The medicine-man or doctor plays amongst them a similar part as among the Indians on the Upper Mississippi. The Costa Rica tribes do not bury their dead immediately, but deposit the corpse, covered with palm leaves, in a palm-thatched shed (dead-house), where it remains for three years. Every year, on the day of the death of the individual, certain festivals are performed, and it is only at the end of the third year that the corpse is buried in the primitive forest. In the colder region, in the mountains, the tribes adore the sun, probably in gratitude for the beneficial effects of the heat; in the hot region along the coast they worship the sea, which yields them fishes in great abundance, their principal nourishment, and saves them from starvation. With *Sibu*, the "Great Spirit," they got only acquainted through the Catholic missionaries, who also gave them crosses (sibu-ruka) and rosaries (sibu-wue), and spoke to them of the salvator (sibu-durke). Although the similarity of the Central American word "Sibu" and the Indian god "Siwa" is very striking, still I think it would be going too far to deduce from this and other philological instances any affinity between the tribes in Costa Rica and the Siwa worshippers in India. Even the word Sibu has only been adopted and applied to the Great Spirit by the Catholic missionaries, whilst in India we have before us a whole well-defined system which claims in many respects as much our admiration as any other religious doctrine. They adore also a number of idols, principally in the shape of animals: eagles, bats, snakes, &c. I saw some of these idols made of gold and copper, and of such perfection that I suspect they have been brought into the country from Mexico, as their manufacture must have required much more skill than the Indian tribes of Costa Rica ever possessed. All the Indians I met in the wildernesses of Costa Rica were extremely kind and tame. They are quite uncivilised, but not savage or wild. Only of two things one must avoid to speak, in order to remain on the best terms with them, namely, of conversion and of gold-seeking. The Catholic missionaries and the Spanish adventurers, who, soon after the conquest, visited these regions have, by their religious fanaticism and their thirst for gold, committed such atrocities and outrages and brought such misery over the country that even to this very moment the few remains of Indian tribes who live a nomadic life in the mountains and on the slopes in Costa Rica, get enraged and may become formidable enemies when they are made believe that the object of the foreigner's visit is to convert them or to look after gold. To venture to trace the origin of these tribes is rather hazardous.

However, several reasons unite to speak in favour of the probability that the present Indian tribes in Central America are the descendants of the Toltecans, who, after inhabiting the plateau of Mexico in the beginning of the 11th century, migrated southwards, considerably intermixed with the wild Chichimecas.

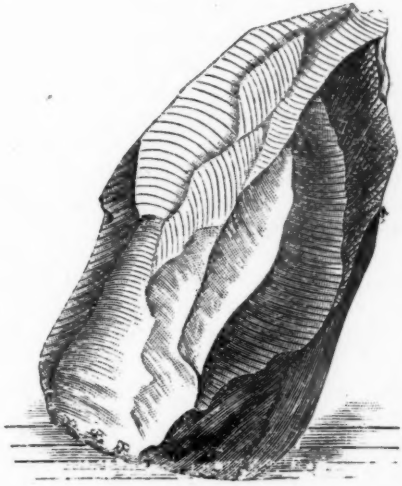
The author then read the following paper:

On FLINT CORES *as* IMPLEMENTS. By Dr. GILLESPIE.

THE examination of a large number of flint cores has led me to discredit the views commonly held about these structures. They have been generally looked on as the blocks left after flakes had been struck off for use, and that they were then thrown aside as refuse, nobody having appeared to recognise the fact that they are all in reality implements of very definite construction, and of so common occurrence that it is a matter of surprise that this interesting fact has not been before noticed. Some of the chief reasons that have led me to recognise the implemental nature of these cores are—1st. The fact that they follow a definite typical arrangement. 2nd. That some of them are so small that the flakes struck from them could be of little practical use as working tools. 3rd. That the numbers of cores found in any one locality are out of all proportion to the number of flakes. 4th. That immense numbers of flakes are found which bear no marks of use, and which may properly be looked on as waste. 5th. That almost all the cores found do bear undoubted marks of use.

On comparing a large number of cores from various localities, I find that they are all characterised by possessing a plain surface as a base, from which the sides, or, as it is in some cases, merely a worked face on a rough block, rise at angles varying from 60° to 80°, and that in one of the most typical forms, which is commonly known as a "hoof core," the angle was exceedingly constant at about 70°. This form, too, is generally elongated, and sometimes smoothly rounded off at one end, which would admit of its being readily held in the hand, and used probably in the manner of a plane. The edge, formed at the junction of the base and sides, almost invariably bears marks of use. In the larger cores these marks are coarser, and the edge is broken away, and crushed, as if by pounding or striking some hard substance. Some of these have been re-faced, when the edge was lost, by fresh flakes being struck off; and thus a new cutting edge was made to replace the old one without a new block being required. In the smaller cores and pointed nuclei the chipping at the edge is much finer, as if they had been used as planes or scrapers for working some substance,

such as bone or horn, which requires a stronger and thicker edge than could be got by the acute angle of an ordinary flake; and further, in those conical nuclei, where great pains seem to have been taken to work them to a point, there is never any appearance of this pointed end having been used, while the lower edge bears evident marks of such use. In many of these cores the flakes are so struck off the face of the block as to leave one or more projecting points, separated by depressions (and this flat end is always at less than a right angle with the side), which give a deeply-indented outline to the aspect of the base. In some cases each end of the core is bevelled off at a working angle, in which case marks of use are easily distin-



guished on both; this, and the re-facing a block to procure a new edge, show that these ancient workmen were not deficient in some ideas of economising trouble and material.

These core-like stones differ materially from such coarse flakes which are usually recognised as "strike-a-lights." Out of 100 cores which I examined 12 were double-ended, 35 were bevelled at an angle of 70° as near as possible, 10 at 75°, 24 at 80°, 9 at 65°, 5 at 60°, &c. These were collected at various stations, viz., Wanboro', Seale, Farnham, and Postford, in Surrey; Pullboro', Sussex; at Reading in Berks; and at Yorktown and Wishmoor, in Surrey; and the cores figured in the "Reliquiæ Aquitanicæ," Pl. 1, figs. 1 to 5, show exactly the same characters, fig. 3 exhibiting a double-ended one. Mr. Evans states, in "Ancient Stone Implements," that cores were generally

thrown away as refuse, the object of the operator being to procure flakes*; but I would suggest that, if my conclusions be borne out by a more general study of worked cores, we shall have to look upon them as implements manufactured for some definite purpose, and not as mere workshop refuse. The large numbers, and the variety of localities in which these are found, whether in the caves of the Dordogne or in the resting-grounds and camps on the uplands of England, give an importance and interest to the study of these ancient tools which may prove of use when attempting to form any general notion of the culture and modes of life of the men who made and used them.

Some high authorities account for the crushing and chipping at the edge by considering these as merely the marks of abortive attempts to strike off new flakes; but flakes are struck off by selecting a projecting angle, which itself is the result of two flakes having been struck off with one edge conterminous, and the separation of the flake usually takes place with a clean edge at the point of impact; whereas the chipping, which I look on as marks of use, is, in the best examples, a fine, continuous scalloping, following the outline of the depressions as well as the projections, and conforming exactly to the use-marks on flakes and scrapers, which are undisputed in their character.

If flints were ever used as flaking instruments, I should be inclined to look on these so-called cores as the flakers; but there is little beyond surmise to help us to form a notion on the subject. As before suggested, bone, horn, and hard wood would have been the most likely materials to work on, if these instruments were used at all as chisels, planes, or scrapers. Professor Rupert Jones suggests that they may have been used as gouges to dig out canoes with. Captain Cooper King thinks they may have been of service in sharpening the charred ends of stakes, &c.; but in the present state of our knowledge it is impossible to come to any definite conclusion on the subject. These worked cores have not, I believe, been found among the drift implements, and must be referred, I think, to the earlier neolithic period.

Discussion.

The President thought that Dr. Gillespie's view of the use to which the cores were put was worthy of attention, although he did not concur in thinking that they were in most cases constructed for the purpose of being used in planes in the way that we know from the Esquimaux the so-called scrapers were used. Dr. Gil-

* This is no doubt true of such blocks as the Presigny cores, and those of obsidian from Mexico, flint from Scinde, &c.

lespie's conjecture is based on the observation that the cores have always a flat top or base, that the facets at the side are often at an angle with this base, forming an edge at the point of junction, and that this edge is often bruised or worn. A flat top or base was, however, always formed preparatory to striking off the flakes, and all flakes show the traces of such a flat top above the bulb of percussion: the angle of the facet may have been accidental and was never a right angle, and the bruising of the edge may have been formed in striking off the flake, as is often the case when the flake is struck off with a round stone. Still he thought some of those with acute angles might have been used as Dr. Gillespie supposes, and his observations appear to throw a new light upon the matter.

Mr. Park Harrison and others joined in the discussion, and Dr. Gillespie replied.

The following paper was read by the author:

On Marks *found upon* Chalk *at* Cissbury. By J. Park Harrison, M.A.

Soon after it was established, by the scientific method of exploration adopted by Colonel Lane Fox last summer at Cissbury, that the shafts and galleries in the ditch of the camp had been excavated at a date anterior to the existing ramparts,* the question suggested itself whether the pits opened in the year 1874 by Mr. Tindale and Mr. Ernest Willett, were of the same remote age, and intended, either wholly or in part, for a similar purpose. To see if this could be ascertained by anything distinctive, I descended with the aid of a rope, down a steep slope composed of loose chalk, to a ledge about 10 feet from the bottom of Mr. Willett's pit. This ledge or stage was cut in the solid chalk rock, and ran along the east side of the pit for a length of 8 feet, and it was easy from thence to reach one of the heaps of chalk, that had accumulated to a height of about 5 feet on the floor. In its main features the pit differed from those excavated last summer, both in dimensions and plan. It was square instead of oval; or, speaking more exactly, it was of a rude rhomboidal form, a parallelogram with the corners rounded off, the principal curve being to the north-east. Galleries communicated with the central shaft through low entrances, as in the case of the pits in the ditch, but they were wider and higher, owing, perhaps, to the greater solidity of the chalk. One of the galleries, which ran for some 20 feet into the chalk rock in a north-easterly direction, returned in a line almost parallel to its first course; and at the time of my visit the upper part of the entrance to this gallery

* Though some pits inside the camp were suspected by Lord Rosehill and Canon Greenwell to have been so, no steps had been taken to ascertain the point.

was partly visible. The others were entirely concealed by chalk rubble which had been thrown in at the conclusion of the excavations.

Upon making a superficial examination of the north gallery, the only marks noticed, on this occasion, were the name of a tourist and the date "1875" slightly scratched on a projecting piece of rock immediately over the entrance. They at once caught the eye, owing to the fresh appearance of the letters and figures, contrasted with the warmer tint of the old chalk surfaces, and ancient fractures and pick-marks. It showed that some person had found his way to the floor of the pit since the summer of 1874.

The entrances to the galleries on the south, east, and west sides were, as was said before, choked up with rubble, and the *debris* extended some way into the excavations. Being without tools, all that could be done was to clear a passage just sufficient to gain access to the entrance of the east gallery whilst lying at full length on the chalk rubble; and I found it to be the best plan to enter with the feet foremost, in order the more readily to push down the heavier blocks of chalk into the chamber below, and this it was found easiest to do when lying on the left side. Gradually advancing in this way, whilst resting for a few moments, I observed on the chalk jamb immediately opposite to me, the complex figure or double character of which a *fac-simile* is appended. It would most probably have escaped notice altogether had the circumstances not been so favourable for observing it, and it certainly would not have been seen by any one standing on the floor of the pit, even if it had been clear of rubbish; nor, again, by a person entering the excavation in the usual way in such cases, on hands and knees, its position being under the spring of the chalk-soffit of the entrance, about 2 feet 6 inches from the ground. The tint of the incised lines also, a cream-yellow [with small patches of green mould here and there upon them, in common with the old surface which, it may be assumed, had grown since the pit was cleared out in 1874], would, even in a more open and exposed situation, have led in all probability to the mark being overlooked, or if noticed by the workmen would not have been recognised by them as artificial, or like anything they had before seen.*

fairly represents the form of the character, allowance being made for the difference in size, $\frac{1}{16}$ of the original.

On returning to Colonel Lane Fox, in the ditch of the camp, to announce the discovery, I found Mr. E. Willett,

* Near the above mark, but on the exterior of the wall, I noticed two others formed like "⌊" and "⌊." But, in heaping up the chalk to prevent access to the gallery, I broke the surface in which they were cut.

who had arrived in my absence for the purpose of examining the "skeleton shaft," and learnt from him that the mark had not, so far as he was aware, been previously observed; he had not himself searched for anything of the kind, or instructed the workmen to do so. By permission of Major Wisden, it and another subsequently discovered were carefully sawn out of the chalk rock, and are at present deposited in the Museum of the Institute for inspection.

No marks, excepting such as might have been made accidentally by the strokes of a deer's-horn, had up to this time been found in any of the shafts or galleries in the ditch of the camp. Subsequently, however, some rude scoring, as mentioned in Colonel Lane Fox's Report, was discovered at the entrances of the west and south galleries of the second escarpment shaft, shortly before the close of the excavations. I was absent from Cissbury, but, on returning a day or two afterwards, found that the scratches were situated precisely in the position which the duplex character occupied in Mr. Willett's pit. None of the workmen had up to this time been made aware of its existence, and there was no evidence to lead one to suspect anyone of having fabricated the marks.*

A ladder being now on the ground, and Colonel Lane Fox at leisure to accompany me, a second descent was made into Mr. Willett's pit for the purpose of subjecting the mark to further examination, when, after a careful scrutiny, it was pronounced to have all the appearance of age. At the entrance of the north gallery, however, I noticed, shortly afterwards, upon a recessed block of chalk immediately beneath the name and date before alluded to, two other marks [16] resembling the figures 16. They appeared to have been cut with a flint; and no difference could be detected in the tone or colour of the incisions and that of the old chalk surface. This accounted for my having at first overlooked them, whilst the name and date at once caught the eye owing to their bright appearance. The discovery, owing to an imperfect knowledge of the early forms of letters, led to considerable doubt as to the antiquity of the marks, and, as a consequence, of the duplex character as well. And the doubt was not entirely removed until some weeks afterwards, when, in a description of some antiquities at Syracuse by Mr. Sayce, which appeared in the *Fortnightly Review* of the following September, mention was made of inscriptions at the entrance of rock galleries in the ditch of the fortifications, which

* The discovery of similar marks, only of a less rude character, at the entrance of two galleries, in a pit opened this autumn has removed all doubt of their genuineness.

were composed of letters that the learned linguist believed to be pre-Phœnician, and amongst them were some in the form of the Arabic 6. It had previously been ascertained to be a letter used in some of the earliest Eastern alphabets, *e.g.* Ancient Syriac, Palmyrene, and Early Coptic. Its value appears to have been "l" or "b."*

Returning to the ruder marks in the second escarpment shaft; besides the scoring and lattice pattern at the entrances of the south and west galleries, I found a double cross on the south wall of an inner chamber of the gallery which ran under the outer rampart. It had been made, apparently, with the tine of a deer's horn, and was observed immediately after the passage, by which access was obtained from the main gallery, had been cleared out. The chamber in which it was found had two square recesses, and was of unusual size, the soundness of the chalk in this part of the formation allowing a span roof, without support, of about 10 feet from wall to wall; and for the like reason it was comparatively free from chalk rubbish. Near the mark was a jagged hole, made apparently by repeated blows of a deer's horn. This at first suggested the idea that the cross lines might have been due to erratic strokes of the implement. The regular form, however, of the figure, and the even depth of the marks, appeared to me, on further consideration, to indicate design, for it showed that uniform pressure must have been used in forming them. They were also too near the low roof of the chamber for vertical blows to have been given in the requisite direction. There was nothing in the mark itself inconsistent with the belief that it might have been the work of neolithic man.

Whilst Guiles, the foreman of the labourers, was removing the chalk from the passage above alluded to, he noticed amongst the rubble a block which appeared to have been rolled, or else worn or rounded artificially by handling. Upon removing it to the light it was found to be covered with minute figures. Though very possibly natural, they may, notwithstanding, have been made use of in divination, or have been preserved for some other purpose. Unfortunately, Guiles, in forcing his way through the passage, had overlaid the piece of chalk, and, being moist, the marks upon it were injured, and some almost entirely obliterated. It led, however, incidentally, to a further discovery of considerable interest, for upon showing the piece of chalk to Mr. Ballard, when leaving Cissbury shortly afterwards, he told me that a number of rounded blocks had been met with in Mr. Tindale's pit, and that several of them had been preserved by himself and deposited at his mill-house beneath the hill.

* It occurs on the "Moabite Stone" (B.C. 900) as "l."

One, however, was then in his garden at Broadwater, and this he gave me, offering to send other specimens if sufficient interest was found to attach to them. They were all, I learnt, more or less pitted with small round holes and scored with lines which Mr. Ballard thought might be natural, *i.e.* produced perhaps by the claws of a badger, remains of that animal having been found in Mr. Tindale's pit. It will be seen presently that this explanation, as well as other attempts to account for the marks by natural causes, have proved to be insufficient.*

Having heard from Lord Rosehill† that Mr. Tindale also had collected several pieces of chalk with marks upon them, and that one was in his possession, I found, on examining it, that it was covered with figures, some of which closely resembled those found on rocks and early stone monuments in Scotland, amongst other places, in the Isle of Eday. They seemed to me partly natural and partly artificial.

The block given to me by Mr. Ballard, 7 inches long by 5 inches wide, was, as I have already said, covered with lines, many of which crossed each other, whilst others radiated from small pits, and some continued in a straight course quite across the chalk. A different pattern, composed of curved lines, occupied the sides. The block has been submitted to several eminent geologists and other persons well acquainted with natural causes that it was thought might have produced the marks in question, but they have not been accounted for. As badgers' bones had, however, been found in Mr. Tindale's pit, I adopted a suggestion made by Mr. Woodward (and subsequently by Professor Busk) that experiment should be made in a badger's den, and it was hoped that this might be conducted at the Zoological Gardens under Mr. Bartlett's directions. On applying to that gentleman he very readily undertook to test the matter. But the results were negative. Indeed, Mr. Bartlett, who had not been able to recognise in the markings anything that was peculiar to the badger, expressed from the first a decided opinion that the claws of the animal were too long and its legs too short to enable it to scratch lines of the length and straightness of those found upon the chalk block. In fact, the scratches on the sides of their dens, as I had myself observed, were all more or less curved.

On placing a dead rat under several pieces of pipe-clay, Mr. Bartlett found that the marks made by a dog in its endea-

* The block first obtained alone preserves the marks in a perfect state; all the others subsequently received were a good deal injured from having been thrown about at the mill, and little remained that was distinctive excepting the pittings and the boulder shape of the blocks.

† Lord Rosehill was good enough to send me the block, and it was shown at the meeting.

vours to reach the bait were, from his recollection of those on the chalk block, very similar to them. If any animal, therefore, made these marks, he thought it must have been a dog, and not a badger. I may mention that I have not been able, on repeating this experiment, to obtain results which, on comparison, could be considered conclusive. And there is the further difficulty that the pieces of chalk were found many feet below the surface. The pittings also would still have to be accounted for, as well as the very different character of the marks on the sides of the chalk block. The regularity of the pattern, and the remarkable way in which lines radiated from centres, would appear rather to be suggestive of design. Another cause, which at first seemed to be worth considering, namely, the possibility of the chalk when in a soft state having been thrown amongst bushes, and so impressed with natural markings, has also to be rejected, no forms at all similar to those upon the chalk blocks having been recognised as belonging to the flora of Cissbury. It should be mentioned, as regards the pit in which these blocks were found, that it differs from all others that have been excavated, being 39 feet deep, and formed like a very large funnel, of an oval shape. It is said to have been only about 5 or 6 feet in diameter at the bottom, and there were no galleries leading from it. I also learnt from one of the workmen who had been employed by Mr. Tindale that there was a basin-shaped hollow wrought in the solid chalk floor, at once suggesting the possibility of its having been a well, or rather reservoir; for, if puddled in the manner ponds in the district round Cissbury are still constructed, a certain supply of water would always have been maintained by percolation through the sides of the shaft. This pit then, like Mr. Willett's, may not be of any extreme antiquity, notwithstanding the fact that horns of *bos primigenius* were found in it. It would be easy, since the lower half only has been filled in, to clear it out again, and ascertain for certain the object which it was intended to serve. Returning to the characters in Mr. Willett's pit, doubt regarding their antiquity arises, simply from the fact that they were not noticed until more than a year after the excavation was finished. Some person, therefore, acquainted with ancient letters, might have amused himself by fabricating them. The accidental way in which they were discovered is, perhaps, no sufficient evidence that this was not so; and I should myself put most trust in the colour of the marks and the peculiar appearance that chalk acquires after the lapse of ages when sheltered from the weather. There is nothing to show that the pits opened by Mr. Willett and Mr. Tindale may not be of several centuries' later date than the nests of smaller shafts in the ditch of the camp.

It has been thought well to give a full narrative of the circumstances connected with the discovery of these marks, for future reference, in case similar forms are met with in any further excavations. Having regard to the coast on which they were found, they may, perhaps, by-and-by, serve to supply evidence of "contact," if not of descent.

Postscript. (Oct. 30.)

Since the above communication was made to the Institute, additional marks and inscribed characters have been found in a pit immediately adjoining the one opened by Mr. Willett, but apparently of earlier date. Some of the forms are of the type presented by the duplex character first discovered, *i.e.* straight lines in different combinations, ; but some are curved, and end in a dot or circle, . In more than one instance the lines are arranged in couples. On one piece of chalk, which was found about 5 feet below the surface, under a seam of red clay, are four characters of an early type, . As it was thrown out from the upper part of the pit, and no marks at all similar exist, either on the chalk walls or upon any blocks found within 6 or 8 feet of the bottom of the pit, they would appear to be of a different date, contemporaneous, perhaps, with the duplex character. Lines were found at the entrances of the galleries of a less rude description than those discovered last year; they were more regular and the strokes finer. Only one gallery has as yet been cleared out; it is possible, therefore, that something may be found by-and-by that will assist in determining the date of the new pit. It differs in form from any as yet excavated, and a cave-dwelling and hearth on the floor of the shaft shows that it was occupied for some considerable time. A full description of this interesting pit will, it is hoped, be communicated to the Institute on an early occasion, and appear in the next number of the Journal.

Discussion.

The President said: Nobody knows better, or probably so well as myself, the great attention which my colleague in the Cissbury excavations, Mr. Harrison, has devoted to the subject of this paper, and the valuable assistance which he has rendered to us throughout this inquiry, and I am very glad that the Institute should have the opportunity of hearing a description of the scorings found during the excavations from his point of view, the more so as his opinion upon the subject differs in some respects from my own, inasmuch as I cannot bring myself to feel the same confidence in their

antiquity that he does. It must be understood, in the first place, that the position in which these marks were found in Mr. Willett's pit was not by any means inaccessible to the public. Both Mr. Harrison and my son ascended and descended the shaft several times without the aid of a rope, and with a facility that I could not but admire in Mr. Harrison, who, though no longer young, is active; others might have done the same during the year that the shaft had remained open, for the purpose of examining the caves at the bottom, and, having done so, nothing could be more natural, as we all know, to an individual of the English race than to immortalise himself by scoring his name, especially upon any object or monument of antiquity, which is always considered most appropriate by the British public for the inscription of their autographs. William Penfold, whose name appears just above the marks under consideration, appears obviously to have been one of these worthies. Most of our workmen, with better right, wrote their names upon the sides of the galleries, and we ourselves inscribed ours, with the date of the excavations, as a record for future explorers. When we consider this tendency to make marks, the great facility with which they are made in chalk, and the almost entire absence of such marks, except pick marks (for such I must affirm to be the case), upon the sides of the shafts and galleries generally at the time they were first opened by us, we can only ascribe this absence of them, I think, to the fact of the original excavators having been an unlettered people. It is quite possible that such marks may have been overlooked by Mr. Willett and his men, though I think it is hardly likely. Then, if we consider the forms of the marks; the monogram, if such it is, is not that of any known letter or figure in the English language, and this may perhaps be considered an argument in favour of antiquity, but the "16" is a well-known English form. The figure "6" may be, as Mr. Harrison says, Coptic, or may be found in several ancient characters, and if found in Egypt or elsewhere it might for that reason be attributed to antique sources, but, for the same reason, having been found in Sussex, I consider it English. The facility and rapidity with which such marks are made on chalk leads me even to doubt those which we ourselves found in one, and one only, of our shafts. Mr. Harrison has very properly drawn attention to the fact that no marks, except pick marks, were discovered in any of our pits until after he had discovered these marks in the pit formerly excavated by Mr. Willett; and I think this is important, because this did not arise from their not having been looked for. I had myself been on the look-out for such marks from the first, but for obvious reasons did not tell the men to look out for them; and, moreover, after Mr. Harrison's discovery, the sides and walls of the pits previously excavated by us were re-examined carefully by him and others, and none were found anywhere except the three or four found close together in one shaft, which was the one opened immediately after Mr. Harrison's discovery. One might almost infer from this that the marks were not made until after the attention of the workmen had been drawn to the occurrence of said figures in Mr. Willett's pit. Still I am

bound to say I have no reason to distrust our workmen, indeed, I do not believe that they were made by them, they might have been made by a visitor upon a Sunday, when the tools were left in the pit, and covered up again. I certainly saw a portion of the scoring over the entrance to a gallery in No. 2 escarp shaft, uncovered by myself on the Monday morning. The face of the chalk was covered with a yellow coating of oxide of iron, and the flint flake with which the marks were made had scraped off the yellow coating, leaving the marks white. All the marks had been made with the same flint and with the same edge or point of it, the inequalities of the flint having been impressed on the grooves, and they were the same in all the grooves. We tried the experiment on an exposed face of the chalk with a flint, and found that the whole scoring need not have taken longer to make than about as many seconds as there were lines. Other marks on the entrance to the adjoining gallery had, however, to me more the appearance of antiquity, and may have been, as Mr. Harrison suggests, marks made by the excavators to denote the number of flints obtained out of it, or for some other similar purpose. Indeed, I am far from dogmatising with respect to any of them; the evidence is, I think, unreliable, and my position with regard to them may be described as *agnostic*. I think, however, that we are much indebted to Mr. Harrison for having brought the subject before us and for the able manner in which the view of their genuineness has been argued by him; and I hope that, whether genuine or not, some of the most likely ones may be recorded by means of woodcuts, so that in case of any future discovery of similar marks, now that our attention has been drawn to the subject, we may have them at hand for comparison.

Mr. Park Harrison, in reply, said that it was not easy to get down into Mr. Willett's pit (originally 20 feet deep) until stepping-places were made by himself in the chalk. Single letters and characters having been found in Sussex on British coins of pre-Roman date would lead one to think it probable that they were known previously; and if so, it is reasonable to suppose that they may have been cut by the priests on so tempting a material as chalk, either as charms or monograms of deities, long before the very advanced art of *coining* was acquired. There is nothing to indicate the number of centuries during which the Druids in Gaul practised writing before Cæsar recorded the fact.

The following paper was taken as read:

Note *on the name* "Mediterranean," *as applied to part of the* Human Race; *together with the* Proposal *of a* New Term *in its place.* By F. Jeffrey Bell, Exhibitioner of Magdalen College, Oxford.

Following up a suggestion, half playful indeed, as I think, on the part of Professor Rolleston, made to me at the conclusion of his lectures on Ethnology, delivered in the University

Museum, at Oxford, in Michaelmas Term, 1875, I have considered the name Mediterranean, applied to some of the races of man, principally by German anthropologists. Dr. Rolleston's reference to the term reminded me of an objection which I had long felt, namely, that the epithet Mediterranean in no way did justice to the very laborious investigations of philologists, on the distribution of the Aryan languages throughout the world; and on going further into the question, put in the manner I have already indicated, I have come to certain conclusions on the matter, which I think may as well be put before those who are studying anthropology, through the medium of the Institute. I may, perhaps, be allowed to apologise for certain lacunæ and deficiencies, due to the fact of my being in *statu pupillari;* and I shall also, throughout the paper, assume the unity of the origin of the human race, not so much, indeed, because the arguments of the "polygenists" are difficult to answer, as because it would lead to a longer paper than I at present feel justified in writing, and because of no large experience in the varieties of the human race.* I may, however, be allowed to fortify myself, by a quotation from an article in the new edition of the "Encyclopædia Britannica," signed by the well-known initials E. B. T.: "On the whole, it may be stated that the doctrine of the unity of mankind now stands on a firmer basis than in previous ages."

The first objection which I shall raise ought of itself to be sufficient to convince us that we have no right to apply the term Mediterranean to the Aryan and Semitic races, together with the Caucasians and Basques, as is now so commonly done; and which was, as I understand, first used in this sense by Friedrich Müller, in the report of the voyage of the Novara (Reise der öst: Fregatte Novara, Anthrop. Theil Abth. 3. Wien 1868): it is this, that the name Mediterranean has been already appropriated, and that by the very famous philologist, Ewald† I cannot better describe for what races than by quoting Prof. Max Müller,‡ whom I must thank for directing me to the article, from which this quotation is taken: "The race speaking these languages inhabited the large central circle surrounded by Semitic, South Indian, Chinese, Turko-Tartaric, and Basque languages." So that it is

* I do not think that I shall be considered presumptuous in speaking thus of the polygenists; at any rate, not by those who have read Prof. Häckel's "Schofgëmggeschichte," where he speaks of the *twelve* species and *thirty-six* races of man; with which one might compare his remarks on species, Ann. Nat. Hist. June, 1873, p. 424.

† Ausfuhr Lehrbuch des Hebraischen Sprache, p. 17 (Göttingen 1870), where the note says that its author has used the term, in this sense, for thirty years.

‡ Encyclopædia Britannica. Art. Aryan.

clear that Müller's "Mediterranean Races" includes the Mediterranean of Ewald (Aryan of many authors), *plus* the Semites, Basques, many Caucasian races, and those called Hamitic. This is surely not justifiable. Zoologists, at any rate, do not allow the same generic names to be used in systematic zoology, however far apart in the scale the animals bearing them may be;* and anthropology, which, indeed, can hardly live without philology, is surely not justified in allowing such proceedings. Putting aside this question of nomenclature, although, in truth, it ought not to be set aside, let us pass on to consider how far the name is justifiable, by the facts of the case.

The term Mediterranean might be understood to denote the races living around the sea so called, or the races living in the centre of the earth; the latter seems to be the more usual interpretation. The advantage of it, considered on the former understanding, is, that it draws our attention to the well-known fact, that the so-called Hamitic races (the Dyssemites of many modern authors) are really connected by very close ties with the true Semites;† that is, that the nations living in the North of Africa, and bordering on the Mediterranean, are so closely allied to the Semites that the whole group might be fairly called Syro-Arabian, as has already been suggested indeed.‡ One very great objection is that it seems, in any fair sense, to leave out of notice those Indian races which are, without doubt, members of the Aryan stock, and are, as clearly, closely allied to many very distinct European races. The term, indeed, to my mind, seems to slight the excellent labours of those philologists who have demonstrated, with such admirable clearness, the primitively common origin of the Teuton, the Kelt, the Sclav, the Iranian, and the "Indian." Foolish and wrong is it, at any time, to slight honest and excellent work; but most foolish of all is it for the anthropologist to slight the philologist, to whose labours he owes so much, and to whom, in all probability, he will owe so much more.

Next, with regard to geographical position—and it is only fair to deal with the latitude—they can hardly be called the middle-land races, who do not live south of the Equator (I am, of course, not speaking of modern colonists, but criticising the

* As may be instanced by the amœboid *Pelomyxa*, discovered by Dr. Greef at Bonn (allied to the unfortunate Bathybius, as was supposed); Dr. Greef first called it *Pelobius*, which name has long been given to an insect: it would surely be more easy to mistake two members of the *genus homo* than a protozoon and an insect!

† Cf. Farrar's Families of Speech, chap. iii. *Ibid.* p. 111.

‡ Compare, also, Fr. Müller (Reise der Novara, &c., p. 193): "Ursprunglich scheinen die hamatischen und Semitischen Sprachen eine Einheit gebildet zu haben."

word in the sense in which it is used by Prof. Häckel, in his map of the races of man,* which represents the distribution of the fifteenth century). And again, the Turks, whom no man will allow to be of this Mediterranean race, unless some coming anthropologist shall give the name yet another meaning, live on the borders of the Mediterranean Sea, and did live there even in the fifteenth century. These objections might, perhaps, be sufficient for rejecting the term Mediterranean, as used by Fr. Müller; but it is further right to suggest some other term in its place. It may be that what will follow may afford some justification for directing the attention of the Institute to the matter of a name; and as it will, I think, be allowed that scientific names are only the expressions of scientific knowledge, it may be well to call attention to the following very important point. Important as it is, it must, I fear, be dealt with somewhat shortly, owing to my lamentable ignorance of philology. Much assistance can, as I believe, and as I have already said, be given to anthropology by philology; and it is mostly for the purpose of again drawing the attention of philologists to this matter, that I insert what follows; this, namely, is the problem—Are we justified in placing the Basques, and some of the Caucasian races, with the Aryans, or even with the "Mediterraneanese?"

I will first deal with the Caucasians; little seems to be known of them. Prof. Max Müller tells me that the dialects of the tribes now scattered in the Caucasus are neither Aryan nor Semitic, with the exception of Ossitic and Armenian, both of which are Aryan. The famous Klaproth relates, in his travels, that it was possible to pass through the mountains of the Caucasus (and here it is that most of the non-Aryan tribes are found) by knowing the language of the Tartars. Here are his exact words: "In und am Kaukasus wohnen verschiedène Tatarische Stämme, die *Dialecte einer Sprache* reden, mit deren Hülfe man dies ganze gebirge durchreisen kann."† And it appears that the Tatars he speaks of in this passage speak a language in no way related to the Aryan. Mr. Hyde Clarke, in a paper presented to the British Association in 1872, of which I am sorry to say that I have not been able to find more than an abstract, says, very truly, that the Caucasus is "a place of passage," not "a centre of population," for the world.

To pass on to the Basques, whose origin has for a long time been the subject of dispute. Humboldt had entered very fully into the question; lately, as is natural, French anthropologists

* Frontispiece, vol. ii. English ed., 1875.

† Reise in der Kaukasus, &c., in 1807-8, von Julius von Klaproth 7er Abschnitt. Tatarische Sprachen: Bd. ii. p. 271. Halle and Berlin, 1814.

have devoted much attention to the matter; a very full history of the controversy carried on by the Anthropological Society of Paris will be found in M. Bladé's very valuable book,* from which I shall quote largely in what follows. Two distinct views have been taken, and admirably supported; between them I shall not pretend to arbitrate, but shall point out their bearings merely on the question as to how far the Basques can claim to be Aryans.

1. M. Paul Broca asserts that the Basques are dolichocephalic; but their dolichocephaly differs from that of the other races of Europe: "Au lieu de présenter une dolicocéphalie frontale, ils présentent une dolicocéphalie occipitale, due à la fois au développement exagéré des lobes postérieurs du cerveau, et au peu de développement de sa region antérieure." By the conformation of the cranium, they closely resemble the negroes, save as regards their orthognathism. "Mais je me hâte d'ajouter que les Basques se distinguent à leur tour de toutes les races d'Afrique, même des plus orthognathes, par la petitesse de leur mâchoire supérieure, par le peu de développement de leurs bosses cérébelleuses, et par l'atrophie relative de leur protubérance occipitale; *ces caracterès, d'ailleurs, différencient aussi les Basques des races d'Europe.*"

2. M. Pruner-Bey strongly opposes the conclusions, and indeed premisses of M. Broca; he asserts strongly the brachycephaly of the Basque skull, and gives good reasons for thinking that M. Broca's skulls were dolichocephalic, on account of the crossings with other races, which, as both anthropologists allow, obtains largely to-day. M. Pruner-Bey not only asserts that the Basques cannot be descended from the Aryans, but is confident that they belong to the Mongoloid stock.

And that this is not altogether absurd, the investigations of Prince Lucien Bonaparte,† who has discovered some very striking analogies between the Basque and Finnic languages, and of M. H. de Charencey,‡ go to prove. And although there is no relation whatever, as far as modern ethnologists can see, between the "Iberians" of Spain and the "Iberians" of the Caucasus, and although the name Iberian is purely a geographical, and not an ethnographical term, as even Humboldt§ was compelled to allow—"Der name der Iberer ist nicht bloss ein ethnographischer, sondern grossentheils ein geographischer"—yet it is strange that the Greeks should have called both races

* Etudes sur l'origine des Basques, par M. J. F. Bladé. Paris, 1869.

† Prince Louis-Lucien Bonaparte. Langue basque et langues finnoises. Londres, 1862.

‡ Quoted by Bladé, p. 85 and onwards.

§ "Untersuchungen über die Urbewohner Hispaniens," p. 141. Bd. ii. Gesammelte Werke. Berlin, 1841.

Iberians; and the more remarkable, since in the Caucasus so large a portion is inhabited by "Allophyllian races," as may easily be seen by reference to the Philological Map of Europe, in Mr. Farrar's "Families of Speech."

If I now just add, that philologists find a close relationship between the Basque language and those of the aborigines of America—both are "Polysynthetic"—I think I shall have shown, although, indeed, it has been shown over and over again, that neither anthropologists nor philologists are entitled to put, in any close connection, the Aryans and the Basques. Nor is there any proof of the relationship of the Basques with the Semites. Of the early wide distribution of the Basques, or their kin, over Europe, I need not speak. If, then, the Basques and the non-Aryan-speaking Caucasian races are to be excluded from the group Mediterranean, there is left in it only the Aryans and Semites of the philologists; for them, as I have already shown in the earlier part of my paper, the name Mediterranean cannot be justly used. Here, perhaps, I might conclude, following manifold examples, for the easier, because destructive, portion of my task is done; the more difficult remains, to grapple with the constructive; and here the question is, what name can be given to the two large groups of races, naturally connected together, the Aryans and the Semites of philologists? Are they, or are they not, more closely allied to one another than to any other races known to the ethnologist? Philology distinctly says that they are, in the person of one of its most gifted and laborious students;* ethnology has never separated them. Granting then this, it remains now only to find them a common name.

To this question let us now address ourselves:—

1. No name which regards their intellectual qualities can be found; progressive many Semites are not, as has been eloquently said,† "Had the Semite alone appeared, man might have been sunk in Oriental stagnation—noble, indeed, in his moral bearings, but too simply quiescent and introspective—without science, without inventiveness, without inquiry, without intellectual breath and catholicity, without that physical energy and those 'wrestling thews' that throw the world." Surely the possession of these form the very conditions of progress. Among these two races alone, indeed, is the missionary spirit to be found, but it is not common to them all. Nor are they alone progressive, the Chinese were once so, and the friends of humanity are gladdened, in these days, to see this very spirit in the Japanese.

* Prof. Max Müller, "Science of Language," i. 380.
† Rev. F. W. Farrar, "Families of Speech," p. 186.

2. Westerly drifting many are, but they have also gone eastward; and the Turks, as Mr. Howorth has shown, are also so.*

3. Their physical characters are hardly distinctive; they shade into nearly every other group of the human race.

4. Language, then, alone remains, and this does seem to be absolutely distinctive; the areas of the Semitic and the Aryan languages are distinctly marked.

I propose, therefore, the name Aryo-Semitic for the group; in addition to the reasons produced by the above "exhaustive treatment," I would give the following:—

1. No characteristic of man stands out so prominently as language; as Häckel† says, "The highest authorities in comparative philology justly see in the development of human speech the most important process which distinguishes man from his animal ancestors"; and again (p. 307), "Comparative philology seems especially to be becoming an authority in this matter"—that is, the classification of the races of man. It is quite in accordance with the principles of classification to use as a distinctive name, one which expresses variations in character common to, and distinctive of, a group.

2. There is much truth in Schleicher's remark that there are as many primitive languages as races; it has been shown that the Aryan and Semitic languages had a common origin, and, therefore, on Schleicher's principle the races were also primitively one.

3. The highest authorities in philology use the term Aryan for all the members of the Græco-Italo-Keltic, Sclavo-Letto-Teutonic, Indic, and Iranian families, and do not, as Häckel and others, confine it to the two latter.

4. Names of classes and families must not do more than represent our knowledge at a given time; all our knowledge of the distinctive characters of the Aryans and Semites has been gained by philology.

5. We thus cut off all chances of error as to the Basque and Caucasian races. Many anthropologists insist on physical characters to the exclusion of philological, but such a course is suicidal for the anthropologist; while he too often finds only remnants vague, uncertain, and without any history, the philologist, in the majority of facts which he discovers, has means of comparison and monuments, which have lasted through ages unchanged and untarnished.

Many philologists, indeed, insist on the necessity of classifying languages and blood relationships in a different manner;

* Journ. Ethnol. Soc., ii. p. 472. Cf. also M. Muller, op. cit. i. p. 346.

† Op. cit. ii. p. 301.

but just as truth elsewhere is one, so, surely, is it in the case of man; small sections of families may here and there change their language, but the cases are exceptional, and often, thanks to the labours of the philologist, also explicable.

NOVEMBER 14TH, 1876.

Colonel LANE FOX, F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

Two new members were announced.

The list of presents to the Library was announced, and thanks ordered to be returned to the donors for the same.

FOR THE LIBRARY.

From the CLUB.—Proceedings of the Berwickshire Naturalists' Field Club, Sept., 1875.

From the SOCIETY.—Proceedings of the Society of Antiquaries of London. Vol. VI. Nos. 5 and 6.

From the SOCIETY.—Proceedings of the Philosophical Society of Glasgow. Vol. X. No. 1.

From the SOCIETY.—Proceedings of the Boston Society of Natural History. Vol. XVII. Nos. 1—4; Occasional Papers of do.; Memoirs, do.

From the AUTHOR.—Report upon Geographical Exploration, &c., U. S. America. By Lieut. G. M. Wheeler.

From the INSTITUTE.—The Canadian Institute. Vol. XV. No. 11.

From the EDITOR.—Materiaux pour l'Histoire de l'Homme, June to Sept., 1876.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXIV. No. 170.; Vol. XXV. Nos. 171—3.

From the ASSOCIATION.—The Journal of Royal Historical and Archæological Association of Ireland. Vol. III. No. 24.

From the EDITOR.—Archiv für Anthroplogie. Newr. Band. Erstes Viertel. 1876.

From the INSTITUTE.—Transactions of the New Zealand Institute. Vols. 1, 2, 3, 4, 7, and 8.

From the AUTHOR.—Report of the U. S. Geological Survey of Territories. Vols. IX. and X. 4to. By Professor F. V. Hayden. Bulletin, do. Vol. XI. No. 4.

From the INSTITUTE.—Proceedings of the Royal Colonial Institute. Vol. VII.

From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XIX. No. 84. Vol. XX. Nos. 86 and 87.

From the ASSOCIATION.—Journal of the East India Association. Vol. IX. No. 5.

From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. XX. No. 6.

From the Society.—Transactions of the Asiatic Society of Japan. Vol. III. Part 2.

From the Society.—Journal of the Asiatic Society of Bengal. Part I. No. 1; Part II. Nos. 1—3; Proceedings, do., Nos. 1—7, 1876.

From the Academy.—Bulletin de de l'Académie Impériale des Sciences de St. Petersbourg. Vol. XXI. No. 5; Vol. XXII. Nos. 1 and 2.

From the Society.—Mittheilungen der Anthropologischen Gesellschaft in Wien. Vol. VI. Nos. 1—4.

From the Society.—Jahrbuch der K. K. Geologischen Reichsanstalt. Vol. XXVI. Nos. 1 and 2; Verhandlungen, do., Nos. 2—10.

From the Society.—Mittheilungen der K. K. Geographischen Gesellschaft in Wien, 1875.

From the Society.—Bulletin de la Société Imperiale des Naturalists de Moscow. No. 1, 1876.

From the Anthropological Society of Spain.—Revista de Antropologia. Vol. II. No. 2, 1876.

From the Manx Society.—Bibliotheca Monensis.

From the Academy.—Paunetieck Akademii Unsiejelno'sei, W. Krakowie.

From the Society.—Journal of the Bombay Branch of the Royal Asiatic Society. Vol. XI. No. 33.

From the Editor.—Revue Scientifique. Nos. 1—20, 1876.

From the Author.—Catalogue des Instruments Anthropologiques. By M. L. Mathieu.

From the Society.—Bulletin de la Société d'Anthropologie de Paris. Vol. IV. No. 1, 1869; Vol. IX. No. 1, 1874.

From the Congress.—Congrès International d'Anthropologie et d'Archiologie Prehistoriques Session de Stockholm, 1874; Bibliographie, do.

From the Author—Medical Statistics of the Provost-Marshal General's Bureau. 2 Vols. 4to. By Dr. J. H. Baxter, M.D.

From the Society.—Transactions of the Royal Society of Literature. Vol. XI. Part 2.

From the Association.—Proceedings of the Geologists' Association. Vol. IV. No. 8.

From the Institution.—Journal of the Royal Institution of Cornwall. No. 18, 1876.

From the Association.—Transactions of the Devonshire Association. Vol. VIII. 1876.

From the Board of Admiralty.—Report of Proceedings of the Arctic Expedition.

From the Registrar-General.—Statistics of the Colony of New Zealand.

From the Society.—Transactions of the Society of Biblical Archæology. Vol. V. Part 1, 1876.

From the Right Hon. Lord Arthur Russell, M.P.—Correspondence relating to the Island of Tristan D'Acunha.
From the Editor.—Nature (to date).

For the Museum.

From Edwin Canton, Esq., F.R.C.S.—Skull of a Bushman from the Cape.

The President read the following papers:

Opening *of the* Dyke Road, *or* Black Burgh Tumulus, *near* Brighton, *in* 1872. By Col. A. Lane Fox.

Shortly after the close of the meeting of the British Association at Brighton, in 1872, I opened a tumulus on the road from Brighton to the Devil's Dyke, which, as the contents were remarkable, and the record of it has not yet been published, it appears desirable I should bring the matter before the Institute. I had noted this barrow for examination some years before, and, as the meeting of the Association afforded a good opportunity, I applied to the owner of the farm, Mr. Martin Robinson, of Saddlescombe, from whom I received liberal permission to dig there.

The tumulus is about a mile from the Devil's Dyke, and about fifty yards to the west of the road, a short way to the north of the spot where it branches off from the road to Saddlescombe. It is in a line due north, and about two miles distant from the spot in which the well-known amber cup, now in the Brighton Museum, was found in 1856, in a tumulus in Hove Fields. It will be remembered that the contents of this tumulus consisted of the amber cup, a bronze dagger, a double-headed stone axe, and a whetstone, in association with a burnt body, all of which are now in the Brighton Museum.

The mound now to be described was not very conspicuous from the road, to which fact it probably owed its preservation; but was nevertheless known to the peasantry of the neighbourhood from time immemorial as the Black Burgh.

After taking a careful section with a spirit-level, in a line running north and south through the centre, the result of which is given in Pl. xiii., in order that the shape of the mound before I touched it may be recorded, I commenced a trench 20 feet wide near the foot of the mound at its southern extremity, digging down until the hard chalk floor was reached, at about a foot and a half beneath the surface, and then northward towards the centre, being careful to lay bare the chalk floor everywhere.

One of the first things discovered was a vertical cylindrical

hole in the chalk floor, marked A in the plan and section, Pl. xiii., 18 feet distant from the centre point. It was 1 foot in depth, and 4½ inches in diameter, with smooth sides and a flat bottom, perfectly cylindrical, and evidently cut in the chalk with care. It was filled with fine white chalk rubble, which, being taken out and carefully examined, contained nothing more, and showed no signs of decomposed matter. It is not unusual to find holes cut out in the floors of tumuli, and the workmen had been instructed to look out for such holes. I have noticed a number of them in a tumulus opened by me near Aldborough, in Suffolk, and in one upon Merrow Down, near Guildford; and Canon Greenwell has found them frequently in the tumuli of the Yorkshire Wolds. He supposes them to have been formed to contain food for the dead, and to have served the same purposes which, under other circumstances, was fulfilled by the earthen vessels that are found with the dead; but they are usually of a different shape, being more or less basin-shaped, 1½ to 2 feet in diameter, and the same in depth. The cylindrical form discovered in this tumulus is unusual; I know of no other example, and the care with which it was cut makes it worthy of record. Close to it, at B, Pl. xiii., was a small pointed hole, 6 inches deep, which might possibly have been formed by the point of a stake. Still nearer the centre, at C, Pl. xiii., to the north-east of the first, and about 10 feet from it, was another hole, somewhat larger, 1 foot 7 inches deep, with an enlargement at the bottom, giving it the form of a leg and foot. This appeared as if formed to contain something; but, after the most careful search, nothing was found, nor was there any trace of decayed matter visible.

All over the top of the tumulus, just beneath the turf, an immense number of flint flakes and chips were found. I counted as many as 223 on the first day, and, with them, several well-formed scrapers. Both the flakes and scrapers continued to turn up in lesser quantities throughout the tumulus. Thirteen scrapers were found in all, and one well-formed borer (fig. 1, Pl. xiv.).

As we approached the centre, a horizontal layer of charcoal (R S, Pl. xiii.), about 2 inches thick, was found, extending over the whole of the centre to a distance of 20 feet from it. It was 1 foot 10 inches beneath the surface of the tumulus, and parallel to the chalk floor. The wood from this deposit having been microscopically examined by Mr. Wonfor, of Brighton, was found to be composed of oak. No animal bones were found in this deposit; but a little below it, at E, Pl. xiii., about 2 feet from the surface, two pieces of rib of goat or sheep, 3 and 4 inches in length respectively, were found (fig. 2, Pl. xiv.).

They had been sawed with some cutting instrument, probably a flint, and the longest piece had four deep notches cut near the ends with the same instrument. The bones adhered to the tongue, and were probably of the age of the tumulus. The notches were uniformly $\frac{1}{12}$ of an inch in depth, and of the same width. Three of them at one end extended about three parts across the flat concave face of the rib, and the fourth was cut across the edge at the opposite end. It is possible these marks may indicate that the bones were used as dice in some game of chance, as the practice is amongst North American Indians and others in a like state of culture.

A rude piece of rim of British pottery half an inch thick, black on the inside and brownish red outside, of close pasty texture, scored on the outside with lines forming a chequer pattern by the impression of twisted thongs, the upper edge bevelled upwards towards the outside, but without any enlargement or overhanging lip, was found at T, in the seam of charcoal above mentioned.

The only other object worth noticing before coming to the grave was a modern iron shetlink used by ploughmen to mend their harness, which was found one foot beneath the surface at D, which it is useful to record as showing to what depth heavy objects of known modern workmanship may penetrate into a tumulus and become mixed with others of great antiquity.

Digging onwards towards the centre, we came to the grave containing the central interment, which was shown by the pick sinking into the loose chalk rubble with which it was filled. It consisted of an oblong grave, F, G, H, I, Pl. xiii., 12 feet in length by 8 in width, the length of which was N.W. and S.E., extending to a depth of from 2 feet 3 inches to 2 feet 5 inches beneath the chalk floor of the other part of the tumulus already excavated, so that the bottom of the grave was 6 feet beneath the top of the mound, 4 feet beneath the layer of charcoal which covered it, and 3 feet 6 inches beneath the natural surface of the ground; the bottom was smooth and even and the sides perpendicular, all cut out of the solid chalk.

I will omit the order of discovery, and describe at once the skeleton which was found lying on the bottom, crouched up in the north-western portion of the grave: it was lying on its left side, with the face consequently towards the north-east, the legs drawn up, and the arms crossed upon the breast, which was shown by finding the fingers of both hands nearly touching the chin, the left leg was drawn up a little more than the right leg. The whole skeleton was crushed to a thickness of about 2 inches by the superincumbent earth. The bones were so decayed that although the position was marked with sufficient clearness, they

could not be removed entire with the exception of a portion of the pelvis and some of the leg bones. These having been submitted to Professor Flower, of the Royal College of Surgeons, he has pronounced them with very little doubt, yet without absolute certainty, to be the bones of a female about 5 feet 6 inches in height, slightly made, and not very muscular, as will be seen by his annexed letter on the subject which he very kindly addressed to me after a careful examination of the parts. If, therefore, this is the skeleton of a female, the associated remains are of unusual interest. They consisted of a bronze knife-dagger, a bronze pin, an earthen cup or food vessel, and a necklace of shale beads. These rested also on the floor of the grave, and occupied the opposite or south-eastern portion of it. The bronze dagger, fig. 3, Pl. xiv., lay about 2 feet from the feet of the skeleton, with the point to the east. It is 4 inches in length, triangular, and about $1\frac{7}{12}$ inch wide at the base; the thin portion of the sides of the blade are $\frac{7}{12}$ inch in width at the base, narrowing to the point, and having a central triangular rib $\frac{8}{12}$ inch wide at the base and $\frac{1}{12}$ inch thick, tapering also to the point. The handle was secured by two bronze rivets $\frac{5}{12}$ inch in length, which remain. It is but slightly patenated, showing portions in which the bronze colour remains.

The earthenware cup or food vessel, fig. 4, Pl. xiv., was situated to the south-east of the feet of the skeleton and about 2 feet from them. It was broken in three pieces, obviously by the same cause that had flattened the skeleton. When restored it measured 2 inches in height, 3 inches greatest diameter at top, $2\frac{2}{12}$ inches diameter at bottom, thickness $\frac{4}{12}$ inch, weight about 4 oz., of a close pasty texture, apparently without quartz grains, very slightly and irregularly projecting at rim, hand-made, not turned, of a brownish red colour, without any ornament, except on one side; where near the rim, on one side only, there are two semilunar ears close together, projecting about $\frac{5}{12}$ inch, on the upper part, and diminishing gradually towards the lower part of the curves. This form is remarkable. I know of nothing exactly like it; the nearest approach to it being upon two urns figured in Waring's "Ceramic Art," Pl. xviii., Nos. 245 and 247, one from a tumulus near Swanage, Dorset, which was associated with a copper ring brooch; and another from a Cornish barrow described by Borlase, and attributed by him to the Romano-British period in consequence of eight or nine Roman coins, one of Constans, well preserved, having been found in the earth of the kistvaen which enclosed the urn. The ornamentation upon these large urns differs from that of the present diminutive specimen, inasmuch as the arch-shaped ears, instead of being close together

and confined to one side of the vessel, are separated at regular intervals around the side of the urn, and they are also much more carefully formed than the one now under consideration, which is roughly constructed. Close to the earthen vessel was a bronze pin, fig. 5, Pl. xiv., 2 inches in length; the head, if it had one, was wanting; the pin for a space of $\frac{6}{12}$ inch from the thicker end was square, with $\frac{1}{12}$ inch sides; the remainder rounded: it has broken in two pieces, and is finely patenated. In the chalk rubble surrounding the earthen vessel were found a number of small disc-shaped beads, fig. 6, Pl. xiv., $\frac{2}{12}$ inch in diameter and about $\frac{1}{12}$ inch thick, some being thicker than others, perforated in the centre. They are of shale, and appear to have been originally strung together; not more than fifty of them could be found, which makes it improbable that they were used as a necklace, they may possibly have been attached to the pin or may have served as an armlet or bracelet. Canon Greenwell informs me that he has met with similar disc-shaped beads in Northumberland, but usually interspersed at intervals with long oval beads of larger size, or shells, or the vertebra of a fish.

These four objects, having been found on the floor of the grave, were undoubtedly interred with the body, but we have now to consider other objects the position of which above the skeleton renders their contemporaneity less certain. Four inches above the floor of the grave, in the chalk rubble at L, Pl. xiii., just above the back of the skeleton, were found several fragments of a different kind of pottery much harder and better baked, not more than $\frac{2}{12}$ inch in thickness, and having fine grains of quartz in its composition. Unlike the vessel above mentioned this pottery was wheel-turned; the form also was different, and was of the kind usually attributed to the Romano-British period. The rim projected outwards, and the vessel appears to have been of globular form and of some size, being 7 inches in diameter at the rim, a fragment of which is shown in fig. 7, Pl. xiv. Only a few fragments were found in this spot, but the remainder apparently of the same vessel was found higher up, at K, Pl. xiii., at a distance of 5 feet to the south of the former pieces, on the level of the chalk floor of the tumulus, that is, 2 feet 5 inches above the floor of the grave, yet within the area of the grave, if we consider it to have been dug from the surface of the ground. With these latter fragments were found two small bronze disc-shaped objects resembling coins, but apparently without any trace of a device upon them, figs. 8 and 9, Pl. xiv. They are about the size of British coins, $\frac{1}{2}$ inch in diameter and $\frac{1}{24}$ inch thick in the middle, tapering to a sharp edge on the outside, which may, however, be the result of corrosion, weight 13 and

14 grains respectively. It is possible these may not be coins, but merely pieces of bronze belonging to some decayed object; there was no trace of a rivet in the centre of the discs. Two well-formed flint scrapers, one of which is shown in figs. 10 and 11, Pl. xiv., were also found within the area of the grave, but I am unable to say exactly at what depth, certainly not in contact with the body.

The question now to be considered is whether the last-mentioned objects, found above the body, were of the date of the interment or subsequent. It is evident that the same cause which flattened the skeleton into a space of 2 inches in thickness would also press down objects into the grave which were originally deposited above it, or a secondary interment might, as is not unfrequently found to be the case elsewhere, have extended as low down as the primary interment, even in some cases to the extent of disturbing the bones of the latter. The large vessel, of which the fragments were found in two places, was evidently not put in whole, but deposited as shards with either the primary or secondary interment. It is not unusual to find fragments of pottery of a superior quality so placed in tumuli containing cinerary urns of inferior texture, the latter constructed merely to contain the burnt bones or as food vessels; the superior pottery was probably that in use for ordinary culinary purposes. On the other hand, it is impossible that the bronze disc-shaped objects, if they are coins, could be of the date of the interment, notwithstanding the alleged discovery in a Cornish barrow of Roman coins with an urn not unlike, in its ornamentation, the small food vessel found with this skeleton. The coins, if such they are, though I am inclined to think they are not, are clearly of the date of the shards, for although one such coin might have worked its way down from the surface, it is most improbable that two should have descended to the same spot by this means. I am inclined to think, therefore, that, notwithstanding the absence of burnt bones with the shards, they belong to a secondary interment, and this view is confirmed by the observation that a vertical line could be traced through the rubble nearly over the shards and passing through the seam of charcoal, which latter had apparently been disturbed in this place.

The history of the interments may therefore have been as follows: An oblong grave, about 3 feet deep, was dug from the surface into the solid chalk, and the body put in, crouched up, on its left side, with the food vessel, knife, and ornaments belonging to the deceased. It was then filled up, and some additional earth added over the top. A fire was then lighted over the grave, but there is no evidence here, as so frequently happens

elsewhere, of a funeral feast. The mound was then completed to its full height, and flint flakes and a few scrapers and other implements thrown upon the surface of the tumulus. Subsequently a secondary interment was made in the centre; the shards and the coins, or disc-shaped objects, put in, probably with a burnt or an unburnt body, the bones of which, being near the surface, have since decayed. Possibly the remains of other secondary interments might be found if the tumulus were excavated throughout; but the owner of the land to whose kindness I was indebted for permission to dig was unwilling that a larger quantity of chalk should be thrown up than was necessary, and I therefore desisted, but the plan clearly shows what part of the tumulus was excavated, so that this part may be avoided by future investigators should they think it worth while to prosecute the inquiry.

The chief interest of the present find consists in the discovery of the bronze knife-dagger, the peculiar semicircular ornamentation of the food vessel, and the coins, if such they are, with the secondary interment. The association of a knife-dagger with the body of a female is also quite a novelty in interments of this age. The knife-dagger is of the same form as the one found with the amber cup at Hove. Similar ones have been found by Canon Greenwell in the Yorkshire barrows, and are attributed by him to the early bronze age, but they are rare, and I believe that in all his diggings he has only found three in actual association with a skeleton.

I trust that the minute details of measurement that I have given will not be found very tedious. It must be remembered that comparatively few of these barrows are now left to be explored, and upon those who dig into them devolves the duty of recording carefully all that they find. In our present state of ignorance concerning them we cannot tell upon what points of detail theories in after ages may be made to turn. We know how much we could have wished for more detailed accounts from our predecessors. If we must err, therefore, it is well that it should be on the side of accuracy.

Royal College of Surgeons of England, London, W.C.,
18th September, 1872.

Dear Col. Lane Fox,—I have sent the bones which you left with me back by parcels delivery. They consist of fragments of the skull and of the pelvis and a right femur, and belong to a person perfectly adult, but not aged. The teeth present no signs of decay, and are all in place, except the posterior right upper molar, which has been lost during life, and the alveolus filled up. The left lower molar is also missing, but has probably been lost subsequently to the exhumation of the skeleton. The grinding

surfaces of all the teeth are moderately worn. Judging by the size of the femur (17½ inches in length), the person would have been about 5 feet 6 inches high, or rather less, slightly made, and not very muscular. It is unfortunate that the pelvis is not more complete, as then the sex could be determined with certainty. However, from a careful examination of the fragments, I have very little doubt but that it was a *female*. The great sciatic notch is more open than in any male pelvis that I have ever seen, which is a pretty sure criterion, and the general character of the other bones corroborate this opinion, though I do not know how it will accord with the conditions under which you found the skeleton.—Believe me, very truly yours, W. H. Flower.

Excavations *in the* Camp *and* Tumulus *at* Seaford, Sussex.

By Col. A. Lane Fox.

In a paper on the hill forts of Sussex, published in vol. xlii. of the Archæologia, and read in February, 1868, I made some allusion to the camp at Seaford. The comparatively few flint flakes found on the surface in its neighbourhood, the more or less rectangular outline, the presence of Roman remains in its vicinity, and the existence of a mound in the interior, occupying a position near the principal entrance, as if connected in some way with the defence of it, led me to view the local assignation of a Roman origin to this work with more favour than I had done any of the traditions which so commonly attribute the camps of this neighbourhood to that people.

This view, however, never very definitely held by me at any time, was modified to a great extent by information which I received before the paper was printed, and which I was able to add in a note, to the effect that Mr. John Evans, F.R.S., who had spent a few weeks at Seaford in the autumn of 1867, and who had therefore better opportunities of carefully examining this work, had found a scraper and a few flint flakes within the camp. When, therefore, it was decided that the Exploration Committee of the present year should turn its attention to this place, partly through an invitation made to us by Mr. John Price, member of the Anthropological Institute, and partly owing to a false report that the cliff on which the camp stands was shortly to be blown up for the formation of a breakwater, I at once set myself to examine into those other superficial evidences of design in the arrangement of the camp by which the fortifications of the Britons may so invariably be distinguished from those of other races, and especially the Romans.

The destruction of probably at least one-half of this camp, by the erosion of the cliff by the sea, creates a difficulty in this case which is not commonly met with, and gives to the camp, as it

is now seen, an angular shape, which led me formerly to think it possible that the two faces of the rampart now remaining might originally have been two of the sides of a Roman parallelogram. But upon further examination, and comparison with other British encampments which I have lately had the opportunity of seeing, I am able to trace the design of a British engineer in that very peculiarity of this work which had originally led me to doubt it, and to form a very fair conjecture as to the shape of the other portion of the hill which has now been washed away by the sea. The most characteristic feature of a British earthwork, as I have shown in my former paper, to which I have referred, consists in its conforming to the outline of the hill, the rampart following the tactical line of defence—that is to say, that in selecting the line for the rampart they went down the side of the hill far enough to see to the bottom, and thus to leave no *dead ground* outside where an enemy could conceal himself. But when the hill was so large that to occupy the whole of it in this way would entail the construction of a much larger fortress than they had the means of defending, it was customary to select a suitable spot at which the natural line of defence on the hill-side might be abandoned, and turning the rampart suddenly at right angles, to carry it straight across the hill-top, until it met the line of defence on the other side. The spot selected for this purpose was usually one in which the ground on the top of the hill could be commanded for a sufficient distance on the outside of the camp; and as the point of the angle was necessarily the weakest point, on account of the diverging fire from the two faces, it was usual to make the rampart higher at this point.

The camp at Puttenham in Surrey, usually attributed to the Romans, but in reality British, is an example of this system of defence. Here the north and south sides of the camp follow the line of defence of the hill. The west side, being very steep, required no defence; but the east side, on which the ridge of the hill continues for some distance, is cut across, by the rampart turning at right angles, until it reaches the slope on the other side, and the rampart at the angles is of unusual height. At Seaford, the north face conforms to the line of the hill, as seen by the contour lines on the 25-inch map (Sheets lxxix. 9, lxxix. 13), until it reaches a point to the eastward where the rampart can be drawn across the top of the hill with a sufficient command on the outside. The rampart at and near the salient angle also rises considerably higher than on the faces; and the eastern face without doubt was continued southward until it met the slope which, in all probability, swept round that part of the camp which has been washed away by the sea. But there is

another peculiarity in this camp which, upon a cursory view of it, might lead to the assumption that it was not British. The northern face of the camp conforms, as I have said, to the defensive line of the hill. It does so generally, but there are few places in which, standing on the rampart as it now exists, there is a considerable amount of *dead ground* on the outside. The hill dips down, and the slope is lost to view; but the spectator from the rampart is unable to see to what extent this dead ground descends below the line of vision, or how much cover it might afford to an advancing enemy. In order to determine this, with the assistance of Mr. Harrison, I took a careful section of the hill upon one of the two lines marked A B and C D upon the map, fig. 1, Pl. xvii., that is, towards the north and north-west, and having checked this with the contours on the 25-inch Ordnance map, the result is given in the two sections, figs. 4 and 5, Pl. xv.

Drawing a straight line on these sections from a point 5 feet above the lowest part of the *dead ground* upwards at a tangent to the brow of the hill (see "line of vision," figs. 4 and 5), I find that in both cases this line cuts the rampart at 10 feet above the present crest. In order, therefore, that a man upon the rampart should be enabled to see an enemy approaching to attack by the hollows which I have termed *dead ground*, it would be necessary that his feet should be about 5 feet higher than the present crest of the rampart. Now, the excavation of a portion of the ditch of which I am about to give an account, and which is represented in the section, fig. 3, Pl. xv., showed that the ditch has silted up to the extent of 7 feet. If we take 5 feet of this and put it upon the rampart, it will place the defender of the rampart in a position to see the whole of the ground outside the camp sufficiently to prevent any enemy from concealing himself within range of his weapons; and when we consider the curved *trajectory* which an arrow forms (and arrows were used by the defenders of this place, as I shall afterwards show), it is obvious that the assailants must have been exposed to fire from head to foot from the defenders of the rampart. I see no reason to doubt, but, on the contrary, every reason to be sure, that the rampart was originally at least 5 feet higher than it is now; and from this we learn how well the principles of British castrametation are carried out in this work—how carefully the defenders economised their interior space, drawing their rampart just far enough down the hill to obtain a command of view, but not one yard farther than was necessary for that purpose. And I trust also this further point may appear to you to be demonstrated by what I have said, viz. the importance of taking accurate measurements of these

entrenchments, for without a section it could not in this case have been shown by the mere view from the rampart how well this camp does actually fulfil the conditions of a British earthwork. The few hasty scratches with which it is too commonly the custom to delineate entrenchments of this nature utterly fail to bring out the points which are sometimes of primary importance in determining their antiquity and uses.

We next turned our attention to the mound in the interior of the camp, the position of which, commanding the principal entrance to the camp, had led me to conjecture that if it were not a tumulus, it might possibly be connected in some way with the defence of the gateway. The section, fig. 1, Pl. xv., shows the position of this mound, the centre of which was 64 feet behind the crest of the north face of the rampart, and about the same distance to the south-west of the opening in the rampart. The centre line, through which the section runs in a direction nearly north and south, was not taken through the highest part of the mound, but passed through a slight depression on the top of it, the ground rising slightly to the east and west, so as to give it the appearance of having been either a twin barrow, or of having been already opened in the centre. I determined, therefore, to cut a trench of sufficient width to embrace both centres, should such be found. A trench 18 feet in width (fig. 2, Pl. xv.) was accordingly commenced on the south side, digging down until the solid ground was attained at 2 feet beneath the surface. This was determined by the hardness and different colour of the soil, as the tumulus here is not situated upon the chalk, but upon a patch of tertiary formation overlying the chalk in several places on the northern slope of the hill. About a foot and a half of mould with very few stones was found covering the barrow throughout the part excavated; then mould interspersed with numerous flint stones, and, at a depth of 3 feet 6 inches beneath the top, the natural soil, consisting of hard clay of a lighter reddish colour without stones, as shown in the section (fig. 1, Pl. xv.). An examination of the edge of the cliff shows that this clay deposit extends to a depth of 10 to 15 feet in some places above the chalk.

Digging on northwards towards the centre, we found a fragment of British pottery and a large flint scraper, 3¼ inches in length, 2 feet beneath the top at A (fig. 1, Pl. xv.), and another small fragment of the same pottery at the same depth, 3 feet to the north of the last. Digging down to the clay floor, two holes were found in it (B and C, figs. 1 and 2, Pl. xv.), one about 3 feet to the N.E. of the centre, and another 8 feet to the S.W. Both were a foot in diameter, and the same in depth. These holes, it appeared from their contents, had been formed for the

purpose of depositing objects belonging to the deceased which might be of use to him in the future state. The contents of the first hole consisted, firstly, of a chipped celt (fig. 1, Pl. xvi.), 4½ inches in length and 2 in width, without any trace of grinding. This was found at 3 feet 2 inches beneath the top of the tumulus, just over the hole; for although the hole had not been discovered at the time it was found, the clay floor not having been reached at the time, yet when it is considered that the hole must have been dug from the surface of the ground, it is evident that the chipped celt must have been within the area of the hole, the lower portion of which only, viz. that part which penetrated the clay floor, was apparent to us. The fact of this having been an intentional deposit, and not an object dropped accidentally in the earth of the tumulus, was shown by its being surrounded by a patch of soft mould. The workmen had drawn my attention to this mould, and, having scraped it away with a trowel, I found the celt in the middle of the deposit. Scraping away the earth deeper down, the hole was discovered beneath (B, figs. 1 and 2, Pl. xv.), and the following objects then turned up in succession—viz. a few fragments of British pottery, some charcoal, and a quantity of flint flakes; a flint chipped to an edge all round, about 2½ inches in circumference, of the kind which at Cissbury were supposed to be throw-stones. This was at 3 feet 5 inches from the top; five flint saws (two of which are shown in figs. 4 and 5, Pl. xvi.), finely serrated at the edge, and several more fragments of British pottery much decayed. Scraping deeper into the hole, a flint hammer-stone (fig. 3, Pl. xvi.), 3 inches in diameter and much bruised by hammering, was found in the centre of it; and at the bottom a polished flint celt (fig. 2, Pl. xvi.), 5 inches long and 3 inches in width, which had been broken and re-chipped to form a new edge. One side of the celt only was ground, and the other side, as well as the edge, formed by chipping only, no attempt at grinding having been made in repairing the instrument for the ultimate purpose for which it was deposited in the grave. The celt in its original polished state had evidently been about twice its present size; the edge had only been very imperfectly re-formed and the side re-touched by chipping. In the rubbish thrown up from near this spot another hammer-stone, about 3½ inches in diameter, was discovered by Mr. Harrison; one side of this was much bruised by hammering, and the remaining portion being in its natural state showed that it was not formed out of a chalk flint, but consisted of a sea-worn pebble, as is so frequently found to be the case in this part of England, notwithstanding the great factory of chalk flints at Cissbury hard by. A fragment of

another polished celt, consisting of 3 inches of the small end, was also turned up in the mould from near this spot. The colour of this fragment was white, and quite different from that of fig. 2 and fig. 2*a*.*

One foot to the north of this hole, upon the clay floor, 3 feet 6 inches beneath the top surface, another large flake (fig. 2*a*, Pl. xvi.) was found, struck from a polished celt, which, from its form and colour, was evidently a piece of the same celt that was found in the hole. This piece was 2 inches in length, and had clearly belonged to the lower and broader part of the celt. On it was seen the chipping of another edge, and on the upper side of the piece the position of the bulb of percussion, marked by a × in fig. 2*a*, showed that it had been struck off after the piece from which it was flaked had already been detached from the original celt. By no possibility could this bulb of percussion have been formed by a blow delivered on the surface of the entire celt. The blow which caused it must have been delivered on a fractured surface, after the celt had already been split in half. So that we have here evidence of at least three or four distinct fractures having taken place at the time of the interment: firstly, the original polished celt was broken at the edge and re-chipped; then the celt was subsequently broken in half near the middle, and finally, a large flake was knocked off one of the fractured portions, and the other piece had a new edge chipped upon it, and all the pieces were then deposited together in the hole in the grave. The probable form of the original celt is indicated by a dotted line in Pl. xvi.

For what purpose could this breaking up of an implement over the grave of the deceased have been practised? We are reminded of the superstitious rites of some tribes of North American Indians, who break or otherwise destroy all the weapons of the deceased warriors before placing them in the graves, under the supposition that it is the soul of the defunct weapon which accompanies that of the defunct warrior into the happy hunting grounds of the life to come.

Another scraper and several fragments of pottery were found over the other hole (C), to the south-west of the centre; and a scraper, with several flakes and pottery, further to the north-east, where a seam of burnt earth was followed for some distance, until it approached towards the edge of the tumulus on that side.

* From long observation I am inclined to think that the degree of discolouration observable in flint depends not only on time and exposure, but also in a great measure, if not mainly, on the quality of the flint itself. At Cissbury we found that flints from the same formation varied in colour through their position and exposure. Here we find two flints deposited in the same spot and under similar conditions of exposure, yet varying greatly in the degree of discolouration.

Lastly, Mr. Harrison, in searching amongst the *débris* which had been thrown out of the tumulus, discovered a well-formed, barbed, flint arrow-head (fig. 6, Pl. xvi.), 1¼ inch in length, by 1 inch in width at the base. The barbs, of which one had been broken off, extended downwards to the line of the base of the tang.

The foregoing are the contents of what has now been clearly shown to be a tumulus, and which, from the absence of any object of metal, may, with great probability, be ascribed, if not to the neolithic age, at any rate to an age in which flint implements continued in use. The celts and the flint saws show, at least, that the ordinary tools of the period were of flint. A somewhat similar polished celt is figured in Horsfield's "History of Lewes," as having been found in a barrow on Cliff Hill; and the chipped celt is of such frequent occurrence in this part of England as to prove that, more frequently than otherwise, the grinding process was not resorted to in the manufacture of implements of this kind. The pottery discovered in the tumulus was all of the quality usually termed British, that is, of a soft pasty texture, badly baked, red on one side and black on the other, and interspersed with large white grains, apparently of quartz.

No trace of bones, burnt or otherwise, were discovered. No trace of a central grave beneath the clay floor was found, although the surface of it was picked over several times in search of one, and it is probable that the body of the deceased was deposited no lower than the clay floor, and that all vestige of it has disappeared.

Whether the tumulus was of the age of the camp, or not, it is of course impossible to determine with certainty; but the probability is, I think, in favour of its being so. Nothing would be more natural than to bury a deceased chief in rear of his rampart, and close to the main entrance; whereas, if the camp had been constructed by a subsequent race of people, it is not unlikely that the tumulus might have been destroyed. I have reason to believe that there are other tumuli in the vicinity, and, from the trace of flint chips observable on the surface, it appears probable that the spot marked "Hawk's Brow" on the Ordnance 25-inch map would repay the trouble of examining.

We now determined to continue our inquiry into the age of the entrenchment, by examining the deposits in the ditch. It may perhaps be remembered by some of those present, that in our investigations at Cissbury important evidence was brought to light, by observing the relative depths at which objects of different periods were discovered in the silting of the ditch of the entrenchment; that Romano-British pottery was

found about half-way down in the silting, that is, about 2 feet from the surface, but not lower, and the only small fragment of pottery found at a lower depth was of British manufacture. Oyster shells, that almost invariable accompaniment of Roman remains, were found with the pottery of that age, but not lower. The ditch had silted up slowly, and the relics of the different periods were found at the various levels to which they had fallen, as the deposits increased in thickness from time to time.

We determined to make a similar examination of the ditch at Seaford, and for that purpose opened a trench 20 feet in length by 17 in width upon the line shown in the section C D (fig. 5, Pl. xv., the details of which are given in the section, fig. 3, Pl. xv.), to the westward of the camp, about 30 yards from the edge of the cliff. The results may be briefly described as follow: The surface mould, which on the crest of the rampart was no thicker than 8 to 10 inches, increased gradually to 2 feet at the foot of the interior slope, where the washing from the hill behind, and the increased growth of grass, consequent on the moisture in the hollow, had caused it to increase more rapidly. In the ditch this deposit of mould extended to a depth of 3 feet below the present surface, and it contained few stones, if any. In the upper portion of this mould, not lower than one foot from the surface, one or two pieces of mediæval pottery with green glaze upon it was found, and a piece of an old-fashioned clay pipe, then Romano-British pottery began to appear, and the concave line which bounded the lower margin of the mould, at 3 feet beneath the top, was thickly strewed with Romano-British pottery throughout the 20 feet excavated. Below that, the deposit consisted of chalk rubble, without any admixture of mould, as far as the original chalk bottom, which was 7 feet beneath the surface, and in this chalk rubble not a fragment of pottery of any kind was found. One or two oysters were found in the mould, none below it. A few sea-shore pebbles, such as we found in the ditch at Cissbury, and which we supposed to have been used as sling-stones, were found in both deposits. These must have been imported, as they are not found in the tertiary deposits upon the hill. Quantities of limpets were found in the mould, but not lower, and they appear to have been used as food. A whelk-shell was found at 2 feet, with *Helix hortensis* and *Helix nemoralis* in considerable numbers. The ditch was three feet wide at the bottom, the escarp rose at an angle of 45°, and the counterscarp at a more abrupt angle near the bottom, but rounded off towards the top.

With respect to the chalk rubble, no period can be assigned for the accumulation of it. The 4 feet of it at the bottom of the ditch may have taken years to accumulate, or may have been

formed in a single day, but it is probable that as long as the place was in use as a fortress the ditch would be kept open by throwing the rubble up again on to the rampart as it fell down. The absence of any relic in this rubble renders the evidence purely negative on this point. But it is evident that a time arrived when the accumulated rubble was allowed to remain, and the grass began to grow upon it. At this time it was occupied by the Romans, or the Britons of the Roman era, and the shards of their broken pottery were thrown down upon the ditch. Since then the evidence is clear that the silting accumulated 3 feet up to the present time, and was formed partly, no doubt, by washing from the rampart, but chiefly by the increased growth of vegetation, which is still apparent in the moist hollow of the ditch.

A cutting was also made through the rampart, but nothing was found except two flakes, the occurrence of which may have been accidental. A concave line of mould was seen in this section, which corresponds to some extent with the section of the rampart at Cissbury. The pottery in the ditch was of two kinds—black and brown—both, however, of better quality than that found in the tumulus, and of the same kind as that discovered in the cemetery at the foot of the hill to the north.

The accurate account which Mr. J. H. Price and Mr. J. Price give of their explorations in this cemetery renders it unnecessary that I should say much about it. I have, however, drawn a section (fig. 2, Pl. xvii.) of the part of the cemetery which was excavated by me during their absence. In this section is shown the position of the two large urns now exhibited, which, with some difficulty, I was able to extract from the matrix without injury. One (fig. 2, Pl. xviii.) a Roman vessel, wheel-turned, about 9 in. in height, and elaborately ornamented with zigzag lines, was found 2 ft. 6 in. beneath the surface. The rim had been broken before interment, and re-mended by a piece of clay very rudely pressed on. The other, (fig. 1, Pl. xviii.) found at 3 ft. 6 in. from the surface, is of ruder workmanship, also wheel-turned, but made with less care than the former, and 1 foot high. Whilst excavating this last we obtained very clear evidence that an older urn had been broken up in the process of depositing it in the grave. A fragment of the rim of the older urn lay touching the side of the new urn, with the rim downwards. This piece was brought out attached to the urn, and its position carefully examined before detaching it from the position in which it lay. Both urns contained burnt bones, but the most careful search failed to detect anything else. Round about the urns, however, and at the same depth, numerous flint flakes and one scraper (fig. 7, Pl. xvi.) were discovered. The position of these

in association with burials of the Roman or post-Roman age is worthy of attention, and confirms, in a most satisfactory manner, the similar discovery of flint flakes with Roman interments by Mr. Boyd Dawkins in the cemetery at Hardham, in Sussex. My own excavations in the pit at St. Peter's, near Broadstairs, and other places, also confirm me in the supposition that flint flakes, and perhaps scrapers also, may have continued to be employed, at least for funereal purposes, by the Britons as lately as the Roman age. The further excavation of the two Messrs. Price will be of interest, however, in determining whether this cemetery contains any relics of an age prior to the Roman to which the flint flakes may have belonged. The urns were covered with a stratum of clay, which, as there was no break in it, must have been artificially deposited over them.*

I have only further to observe, in respect to the topography of this spot, that a line of embankment, with a ditch on the west side, runs in a zigzag line northward from the Ham Bank, at the bottom of the hill, towards the direction of the camp on the hill, and in the ditch of this work nine Sarsen stones may be seen, which appear evidently to have been deposited here by hand in connection with this entrenchment. The position of the ditch of this work being towards the west, where an arm of the sea must formerly have rendered this inlet a secure harbour for vessels of light draught, and the rectangular outline of the entrenchment, together with its position immediately to the south, and contiguous to what has evidently been the Roman road, leads me to think that evidence of Roman occupation might probably result from the excavation of this work. The irruption of the sea a few months ago, consequent on the destruction of the shingle bank below Seaford, caused this ground to be flooded as far as the Ham Bank, completely destroying the house at Lion Place, and marking by its ravages the line of the valley which was formerly occupied by the sea.

One point more remains to be touched upon, viz. the position of the ancient cultivated terrace which is shown in the 25-inch map, and in the section C D, fig. 5, Pl. xv., and which extends from the cliff inland for a distance of about a quarter of a mile on the slope to the westward of the camp. Similar

* It is worthy of note that Dr. Schliemann, in his description of the so-called tomb of Agamemnon discovered by him at Mycenæ in November of the present year, and reported in the *Times* of the 22nd December, says that all the burnt bodies, with their gold ornaments and the obsidian flakes and bronze implements with which they were associated, were, for a reason unknown to him, covered with a layer of clay 4 inches thick, and over that a layer of pebbles deposited subsequently to cremation.—A. L. F.

terraces to these, formed by the cultivation of the hill-sides in very early times, are common throughout the South Downs, and are doubtless of great antiquity. It is worthy of remark that this strip of land is now held by the corporation of Seaford, by whom it was originally derived from the Church, and is known as the Church lands on the hill. Where the church was, or how it became possessed of this particular plot of ground, I am unable to say; but the fact of its being held under a different tenure from the surrounding fields is worthy of note, and might possibly afford some clue to its history if it could be traced.

A British gold coin, found on the cliff between the camp and the town, was exhibited at the meeting.

Explanation of Plate XIII.

Plan and Section of Excavation in the Black Burgh Tumulus, Brighton.

A.—Cylindrical hole in chalk floor, 1 foot deep, 4½ inches diameter.

B.—Small hole, 6 inches deep.

C.—Leg-shaped hole, 1 foot 7 inches deep.

D.—Modern shetlink, 1 foot from surface.

E.—Rib of goat, scored, 2 feet from surface (fig. 2, Pl. xiv.).

F, G, H, I.—Oblong grave cut in the solid chalk, 12 feet by 8, and 2 feet 3 inches to 2 feet 5 inches in depth, containing central interment, and filled with chalk rubble.

K.—Two circular bronze pieces $\frac{7}{12}$ inch in diameter, resembling coins, with fragments of pottery, lathe-turned, on level of top of grave (figs. 7, 8, and 9, Pl. xiv.).

L.—Pottery of same character as at K, 4 inches above floor of grave.

M.—Bronze knife-dagger, 4 inches long, on floor of grave, point to east (figs. 3, Pl. xiv. p. 283).

N.—Small earthen vessel, 2 inches high, hand-made, bronze pin and shale beads, on floor of grave (figs. 4, 5, and 6, Pl. xiv.).

P.—Skeleton of woman, about 5 feet 6 inches in height, slightly made and not muscular, on floor of grave, resting on left side, doubled up, left leg higher than right, arms bent up, and probably crossed on breast; line of body N.W. and S.E., face to N.E.; head and body crushed down to 2 inches thickness.

R S.—Seam of charcoal (oakwood), 1 foot 10 inches from surface, parallel to chalk floor, extending, over the whole area excavated, to a distance of 20 feet from the centre.

T.—Fragment of British pottery, hand-made, scored with crossed lines made by the impression of a twisted thong found in seam of charcoal.

Explanation of Plate XIV.

Objects from the Black Burgh Tumulus.

Fig. 1.—Flint borer found in tumulus, chipped to a point on both sides.

Fig. 2.—Fragment of rib of goat cut with a flint saw, three notches cut with ditto at one end and one at the other; possibly used as dice (E, Pl. xiii.).

Fig. 3.—Bronze knife-dagger, 4 inches long, found on floor of grave, point to east at M, Pl. xiii., two views (p. 283).

Fig. 4.—Small earthen food vessel 2 inches high, ornamented with two projecting ears on one side, hand-made, found on floor of grave at N, Pl. xiii (p. 283).

Fig. 5.—Bronze pin, square at top and round below, found with earthen vessel at N, Pl. xiii (p. 284).

Fig. 6.—Shale beads found with earthen vessel and bronze pin on floor of grave at N, Pl. xiii (p. 284).

Fig. 7.—Fragment of rim of lathe-turned pottery found at K, Pl. xiii., with small bronze discs (p. 284).

Figs. 8 and 9.—Two small bronze discs of the form of coins, but without any trace of inscription or design, found with the lathe-turned pottery at K, Pl. xiii. (p. 284).

Figs. 10 and 11.—Two views of a flint scraper found in some part of the grave (p. 285).

Explanation of Plate XV.

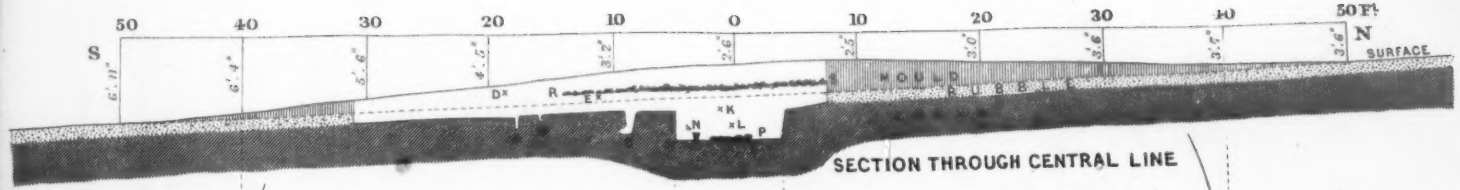
Seaford Camp and Tumulus.

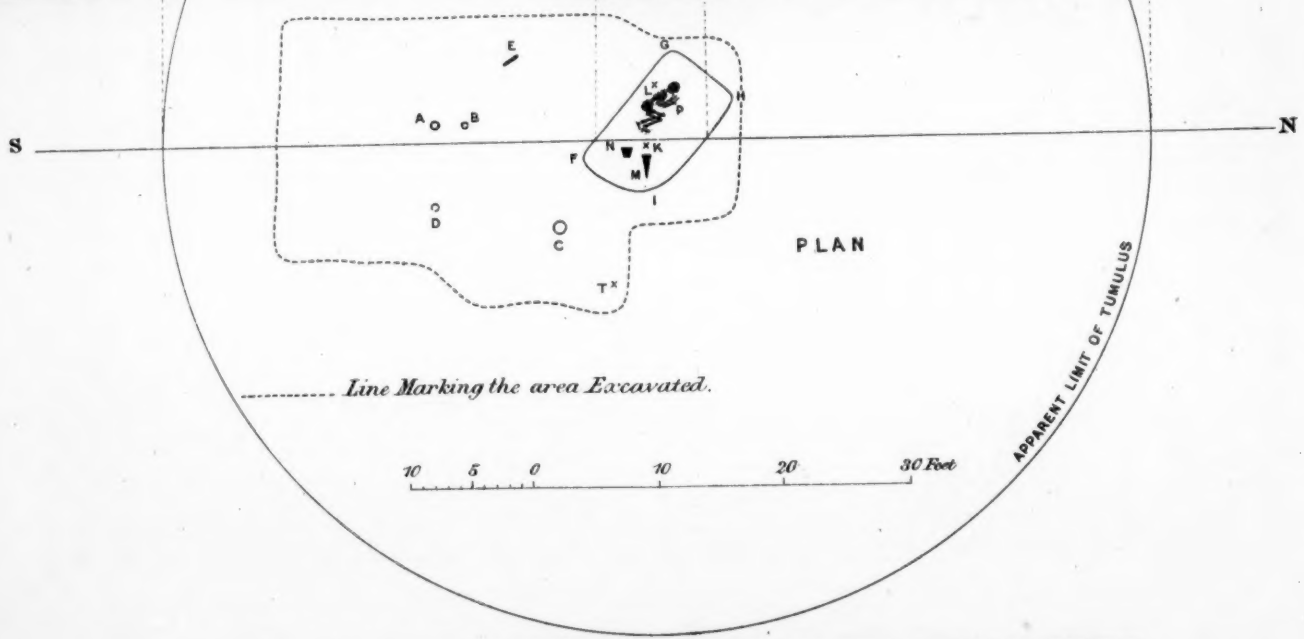
Figs. 1 and 2.—Section on line A B, and plan, showing the position of the tumulus with reference to the rampart, with the part of the tumulus excavated. A, Fragment of British pottery, 2 ft. below surface. B, Chipped flint celt at 3 ft. 2 in. (fig. 1, Pl. xvi.); chipped block at 3 ft. 5 in.; 5 flint saws at 3 ft. 6 in. (figs. 3, 4, 5, Pl. xvi.), on line of floor. Hole in floor, 1 ft. wide and 1 ft. deep, containing a polished flint celt, re-chipped, and numerous flint flakes. C, Hole, 1 ft. by 1 ft.; flint scraper and piece of rim of British pottery. D, Flint scraper at 3 ft. 6 in. E, Large flake chipped from polished celt found in B (fig. 2*a*, Pl. xvi.). F, Scraper and flakes.

Fig. 3.—Section of ditch and rampart excavated on line C D, showing the depth of mould at the several places, and the chalk rubble in the ditch.

Fig. 4.—Section of hill on the line A B of plan (fig. 1, Pl. xvii.) showing the position of the rampart with reference to the dead ground.

Fig. 5.—Section of hill on the line C D of plan (fig. 1, Pl. xvii.), showing the position of the rampart with reference to the dead ground on that side.





PLAN AND SECTION OF EXCAVATION IN THE BLACK BURGH TUMULUS, BRIGHTON.

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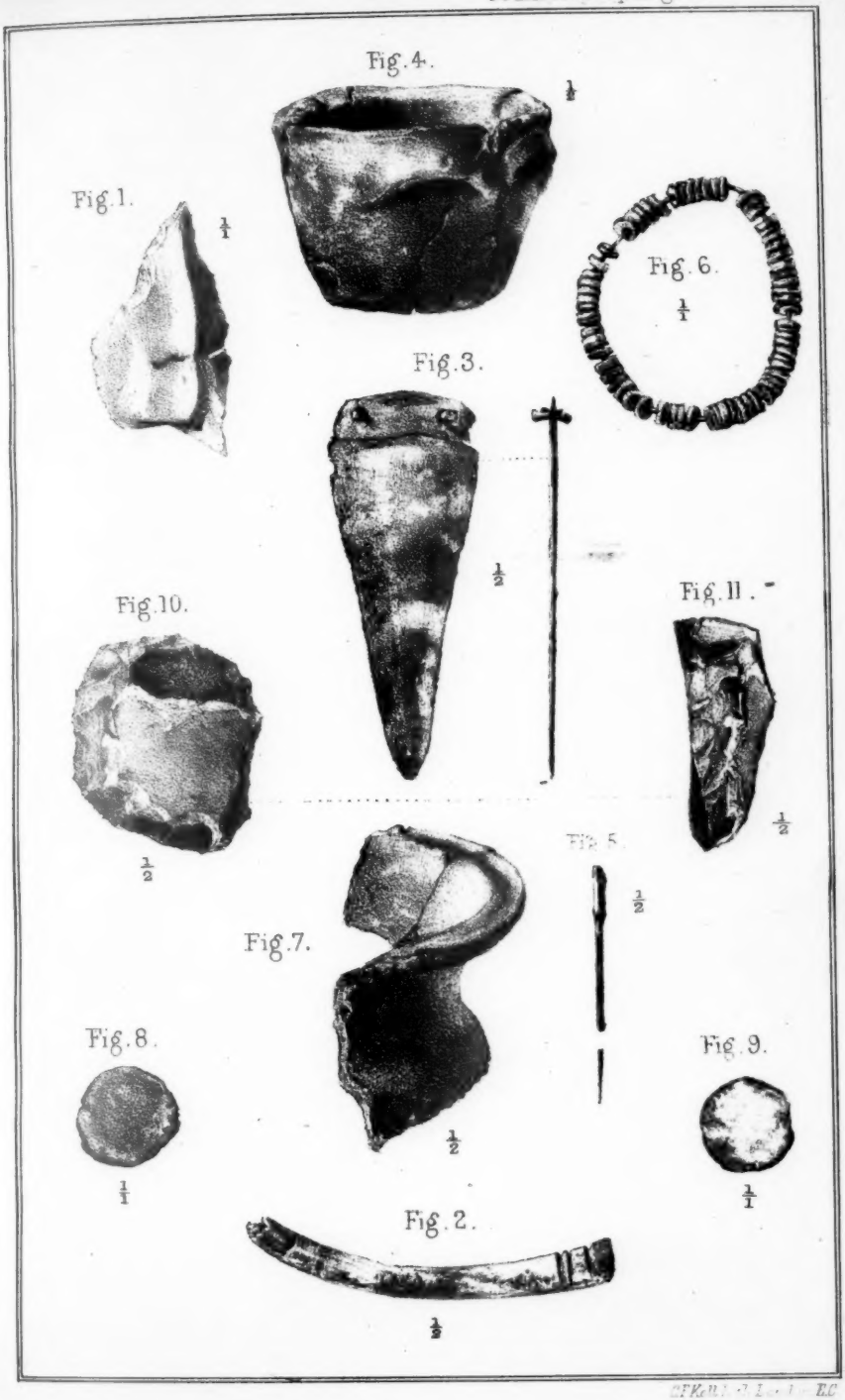
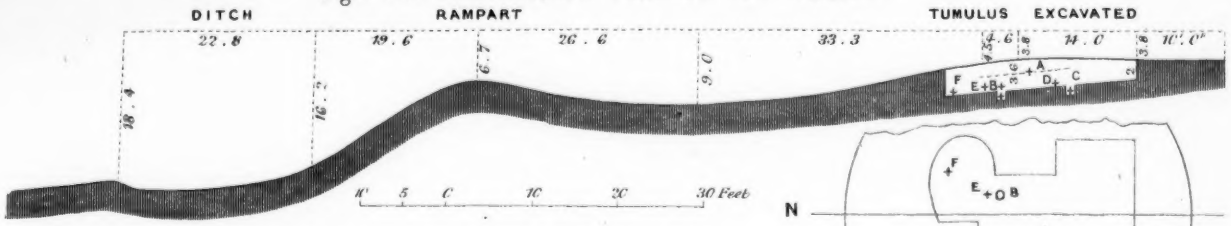


OBJECTS FROM BLACK BURGH TUMULUS.

SEAFORD CAMP AND TUMULUS.

Fig.1. SECTION THROUGH TUMULUS AND RAMPART.



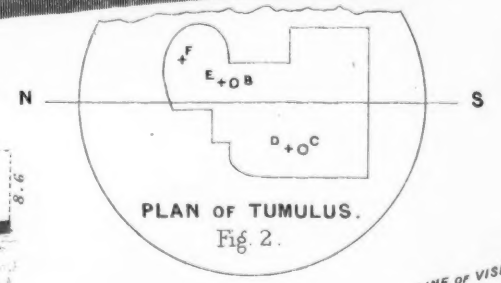
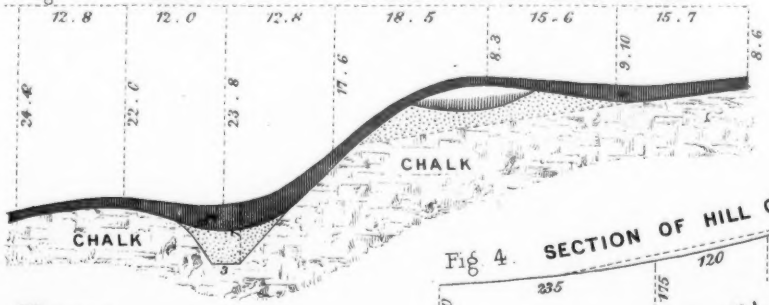


Fig. 2.

Fig 3 SECTION OF DITCH AND RAMPART EXCAVATED



The Heights given in Figs. 4 & 5. are above mean sea level.

Fig 4. SECTION OF HILL ON LINE A.B. OF PLAN.

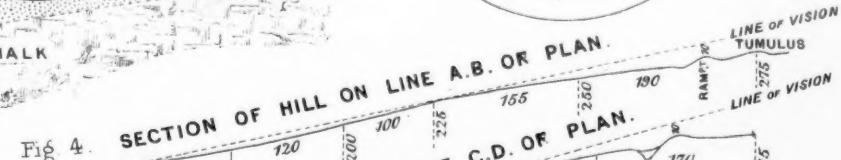
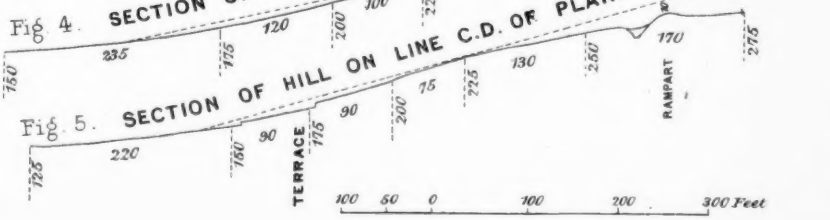


Fig 5. SECTION OF HILL ON LINE C.D. OF PLAN.



Journ. Anthropolog. Inst. Vol VI PLXV.

A.L.F. Delt. 1876.

C.F. Kell Lith. L

Fig 1.

Fig. 2.

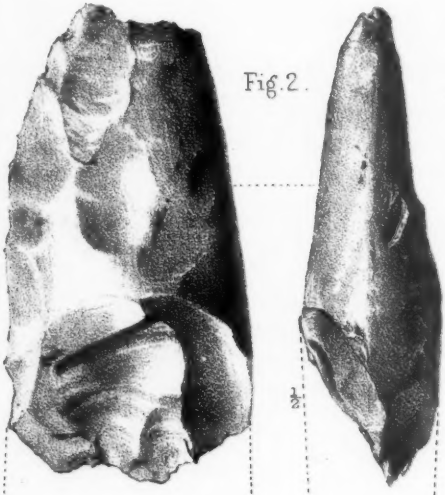


Fig. 2a

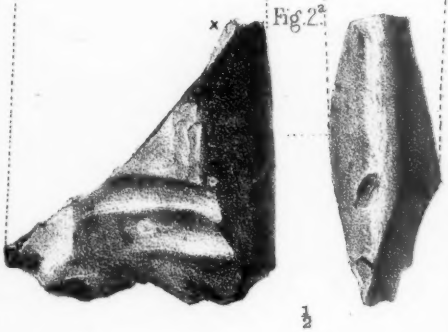


Fig. 4.

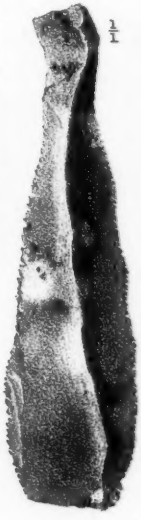


Fig. 5.

Fig. 3.

Fig. 6.

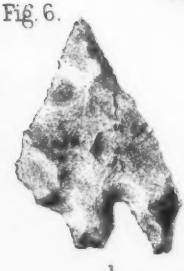
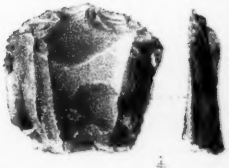


Fig. 7



C. F. Kell, Lith. London, E.C.

OBJECTS FROM TUMULUS . CAMP . SEAFORD.

Explanation of Plate XVI.

Objects from Tumulus, Camp, Seaford.

Fig. 1.—Chipped celt, without any trace of grinding, found in or over the hole B (fig. 1, Pl. xv.), 3 feet 2 inches beneath top of tumulus (p. 291).

Fig. 2.—Fragment of polished celt, showing traces of grinding on one side only, broken, and having a rude edge rechipped; found at the bottom of the hole B (fig. 1, Pl. xv.) p. 291.

Fig. 2*a*.—Another fragment of the same celt shown in fig. 2, found one foot to the north of it on the floor of the tumulus, 3 feet 6 inches beneath the top. This has formed the lower portion of the celt, which is identified by its colour and striations. The position of the bulb of percussion marked with a × shows that the celt had already been split in half before this fragment was chipped off. The original form of the entire celt is shown by a dotted line (p. 292).

Fig. 3.—Flint hammer, showing marks of hammering in the central part, found in the hole B (fig. 1, Pl. xv. p. 291).

Figs. 4 and 5.—Two of the five flint saws found in the hole B (fig. 1, Pl. xv.), finely serrated at the edge (p. 291).

Fig. 6.—Barbed flint arrow-head found in the body of the tumulus, but position not accurately determined (p. 293).

Fig. 7.—Flint scraper found with urns in the Romano-British cemetery at the foot of the hill (p. 295).

Discussion.

Captain Dillon asked whether the greater height of the parapet at the salient angles of works such as those at Seaford, &c., was not due to the excess of *déblai* over the *remblai*, rather than to any intention of strengthening the works at those points?

The President, in reply to a remark from Captain Dillon, said he had no doubt the excess of *déblai* at the angle would be a means of increasing the height of the rampart at that point, but it would not show that it was not intentional. The increase of the size of the rampart at the weak points was certainly one of the most remarkable features of a British camp. At Puttenham, for example, the size of the rampart at the angle was larger than could be accounted for by the overlapping of the *remblai* at the angle, and excess of ditch round the point, and it was fenced round so as to show that it was intended to be a strong post. Sometimes the line of rampart all along the weak side, where the ground is level on the outside, has two or three ditches and as many banks, as at Mount Caburn and elsewhere. A spot in the rampart at Cissbury, which, from its increased height, is known in the surrounding country as Cissbury Knot, is another example of this system of defence, which in that case is used to defend a weak side near the entrance.

NOTES *on the* ROMANO-BRITISH CEMETERY *at* SEAFORD, SUSSEX.

By F. G. HILTON PRICE, F.G.S., F.R.G.S., and JOHN E. PRICE, F.S.A.

By the kind permission of Mrs. Harison, of Sutton Place, and of the Rev. John Harison, Vicar of Bishopstone, we have been allowed to excavate the plot of raised ground near Seaford, commonly known as the Warren, and which has long since been pointed out by tradition as marking the site of a Roman cemetery. The position is so described upon the Ordnance map, and may be identified as being situate on Ham Bank, and defining, as it were, the boundary of an ancient trackway or road known as Green Street, which, starting from near the houses in Lion Place, may still be traced to the ancient property of Chyngton, or Chinting Manor, situate about a mile to the east of Seaford. Almost facing the cemetery another path or roadway may be observed. This is at right angles with Green Street, and runs in a direct line to Sutton Place or Manor,* the present residence of the Harison family. Crossing Green Street, this same path continues its course by the side of the cemetery, and is indicated by the dotted lines on the map as pursuing its course to one of the entrances of the great line of earthworks which exist on the summit of the hill. These earthworks are locally known as the Roman Camp.† They overlook the ancient channel of the river Ouse, and are situate but a short distance from the line of the Ermine Street, which, running from Pevensey and Chichester, continued its course through Surrey to the metropolis. Traditions connecting Seaford with the Roman occupation of Britain, long since led antiquaries to wild speculations as to its early history. An attempt was made to identify it with the

* Four manors formerly existed at Seaford, viz. Seaford, Sutton Sandore, Sutton Peverell, and Chinting, but they have become extinct. That of Sutton Sandore is of great antiquity. It is mentioned in the reign of King John as having belonged to William de Avrenches, who, when imprisoned as a rebel in the year 1216, had to purchase his release by the sale of this manor to the Abbey of Robertsbridge. In the Nonæ Returns for "*Sutton juxta Sefford*, 1341," an inquisition was taken as to the value of the church. Some interesting indications of the site of this early building were pointed out to us by the Rev. Mr. Harison, in a field adjoining his residence. Chinting, now represented by a single house, was an ancient township within the jurisdiction of the port of Seaford. The manor belonged, in the reign of Henry III., to Gilbert de Aquila, Lord of Pevensey and founder of the Priory of Michelham. The house is now the residence of W. W. Turner, Esq.

† The "Camp" is said to enclose an area of nearly twelve acres. That at Castle Hill, Newhaven, is about half the size. Similar entrenchments can be traced at Birling Gap. They enclose a high and also isolated portion of the cliff, the circumference of which measures about three-quarters of a mile. These fortified positions were probably, as suggested by the Rev. Edward Turner, in writing on the military earthworks of the South Downs, constructed for the defence of the valleys of the tide-rivers, by the intervention of which the continuous line of the South Downs is occasionally broken.

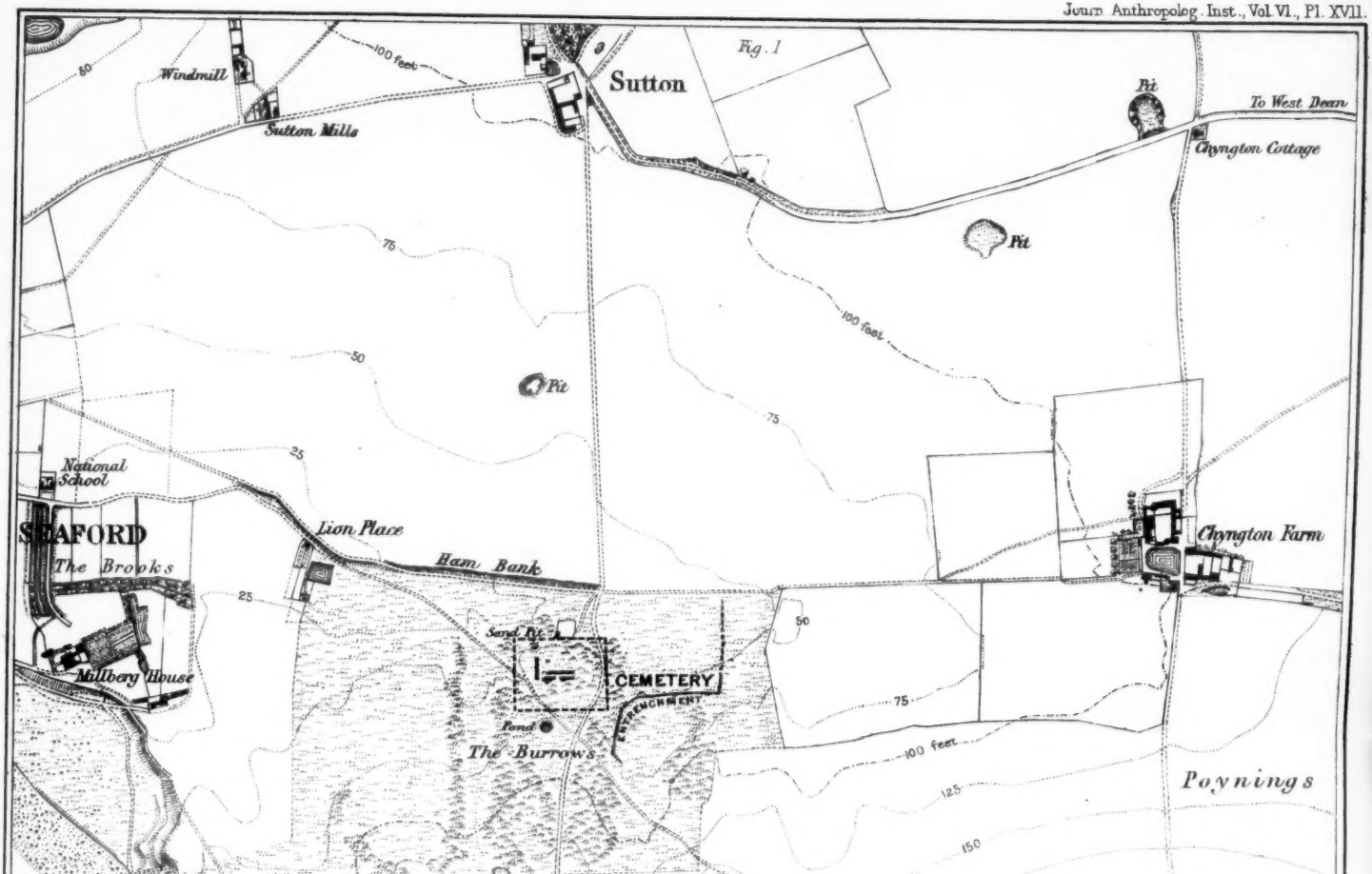
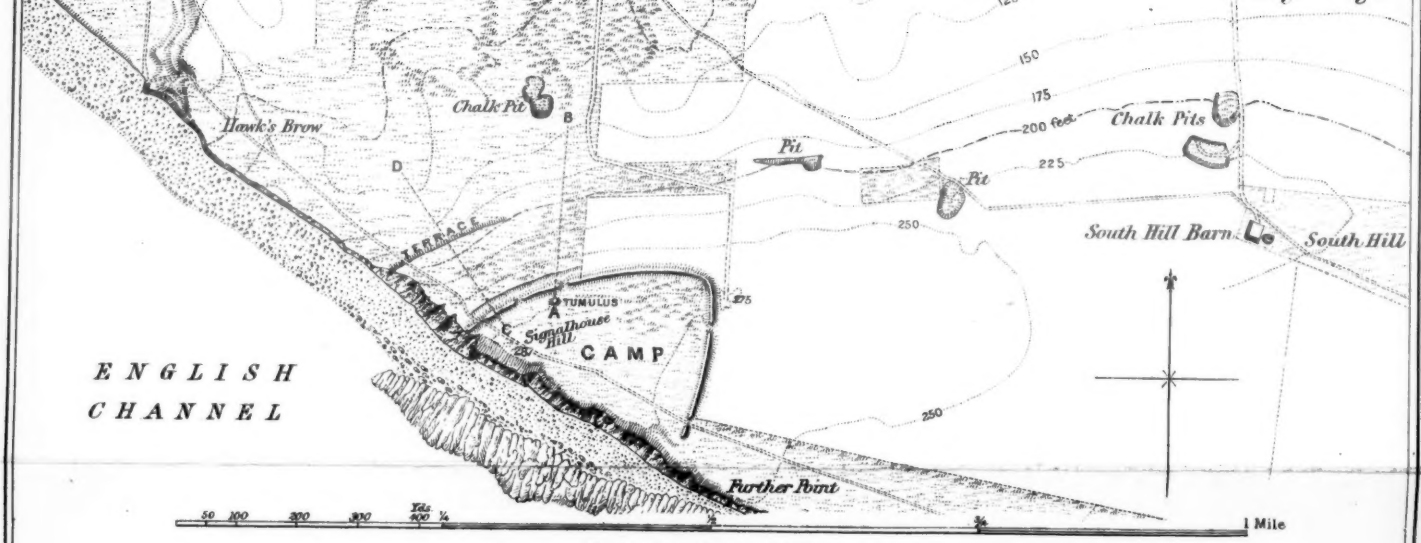
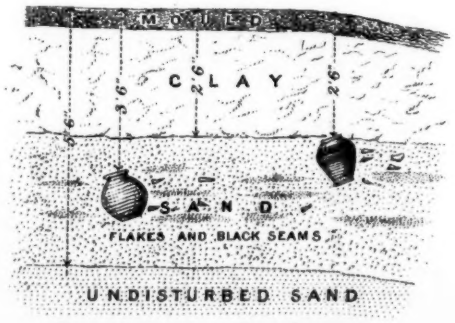


Fig. 1
Windmill
Sutton Mills
Sutton
Pit
To West Dean
Chyngton Cottage
Pit
Pit
National School
SEAFORD
The Brooks
Lion Place
Ham Bank
Chyngton Farm
Millbery House
Sand Pit
CEMETERY
ENTRENCHMENT
Pond
The Burrows
Poynings
80
100 feet
75
50
25
125
150



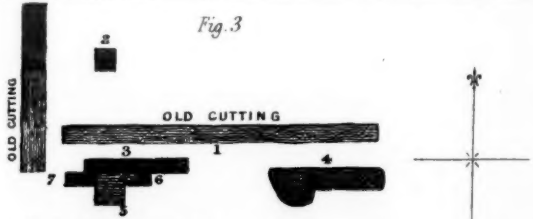
Scale, 5¾ Inches to 1 Mile.

Fig. 2



SECTION IN CEMETERY

Fig. 3



1. *Trench first opened.*
2. *Dug to 6 feet – nothing found.*
3. *Three Urns.*
4. *Black Plateau – fragments of pottery, scrapers.*
5. *Several black patches.*
6. *Three Urns.*
7. *Nothing found.*

PLAN OF CUTTINGS IN CEMETERY

J.P.& W.R ENSLIE, LITH., LONDON

SEAFORD, SUSSEX.

Castrum of Anderida, mentioned in the "Notitia" as being one of the nine fortresses which once served as a protection to the Littus Saxonicum, or Saxon Shore. This view was ingeniously advocated by the late Mr. Charles Verrall, in a communication published in Horsfield's "History of Sussex," vol. i. page 5; but of late years it has been universally admitted that the wonderful remains still existing at Pevensey alone answer the requirements of the claim.* It has been also suggested that Seaford, if not Anderida, may be identical with the Mercredesburn of the Saxon Chronicle, where, in the year 485, a great battle is known to have taken place between the South Saxons and the Britons. The late Dr. Tabor, a physician of Lewes, argued for Eastbourne as marking the site once defended by Ella, the Saxon chief; but a very competent authority on such matters, viz. H. L. Long, Esq., in a letter addressed to the late Mr. M. A. Lower, contributed the following valuable suggestions, which we are induced to quote as being strongly in favour of Seaford. "There is something," writes Mr. Long, "in the name of Seaford which I have often considered likely to throw some light upon the movements of the Saxon forces on their first invasion of our island. After Ælla (A.D. 477) landed at Cymensora, which I am disposed to think was Shoreham, he continued fighting his way to the eastward until he had made himself master of the entire coast, by the capture and destruction of Andredesceaster, or Anderida, in the year 491; but in the interval, A.D. 485, a battle of some importance appears to have been fought with the *Welsh* (*Belgæ*) at a place called *Mercredesburn*. This was a river, as the final syllable proves, as well as because the *bank* is mentioned.† The only river of any size in the line of these military operations is your river at Lewes, which then disembogued at Seaford, and which is of course, strategically, the exact place to expect to meet with such a conflict. Now, is not *Seaford* the Saxon translation of the British *Mearcraed*, as it is spelt in the Saxon Chronicle, but which, perhaps more correctly, would be *Mer* or *Mor*—Celtic for 'sea'—and *Rhy* or *Rhyd*, a 'ford'? There appears to be a superfluous *c* between the two words,

* In reviewing this subject, in his "Report on Excavations at Pevensey," 1858, Mr. Roach Smith proves that Anderida must be sought for between Lymne and the river Adur. In such a situation stands the Castrum at Pevensey, and there is no other camp or fortified place that could be substituted in place of it either in this limited track or throughout the whole line of what was called the Saxon Shore. "It must be understood," writes Mr. Smith, "that earthworks are quite out of the question. All the stations mentioned in the 'Notitia' are, or have been, castra built with strong stone walls."

† The passage in the Saxon Chronicle reads:—"An. Cccc lxxxv. This year Ælla fought against the Welsh, near the bank of Mercreadesburn."

and it requires a Welsh or Armoric scholar to decide whether its introduction is not necessary." That usually far-seeing antiquary, Gough, does not appear to have been in any way familiar with Seaford, for in his edition of "Camden" he does not refer to its antiquities; and, had he been acquainted with its numerous illustrations of Roman occupation, it is more than probable that, while not accepting Pevensey, he would have given the preference to Seaford rather than to Newenden, in Kent, when speculating on the site of the long-lost Anderida.*

There is also documentary evidence of the existence of Seaford of a very early character. It is mentioned in the eighth century, among other places granted to the Abbey of St. Denis, near Paris. In the eleventh century it became the lordship of

William de Warrenne, and in the year 1229 we hear of it as a "member," or "limb," of Hastings, one of the Cinque Ports. Edward the Confessor is said to have been the first monarch who bestowed the immunities and privileges enjoyed by the five ports, representatives, doubtless, of the ancient stations to which we have reference as being under the command of the Count of the Saxon shore.

The first recorded discovery of Romano-British remains appears to have been that made in the year 1825, when, quite accidentally, a large number of sepulchral urns were exhumed. Trenches were being cut for the purpose of disturbing the rabbits, who were gradually undermining the ground, and in the

* See "Memorials of Seaford," by the late Mr. M. A. Lower. Sussex Arch. Collection, vol. vii.

course of these operations the urns were discovered. The late Mr. William Harison, of Folkington, had no less than twenty of these vessels. A selection from them was engraved some years since, in one of the volumes of the Sussex Archæological Collections, and we are indebted to the Council of this Society for the loan of the woodcuts for the purpose of comparison with the objects recently found. Since that time several coins have been discovered. They illustrate the reigns of Hadrian and Antoninus Pius, and as recently as the year 1854 a fine gold medal of Antonia, daughter of Mark Antony, was found, not in the cemetery, but in the shingle, below high-water mark. This, we believe, is now in the possession of J. Maxfield Smith, Esq., of Lewes. In the year 1856 a Roman urn was discovered at Cuckmere, in a heap of mould which had been dislodged from its position by a fall of a portion of the chalk cliff on the western side of the river. Traces also of this period were seen at the pond above what was the head of the æstuary, in the direction of Sutton. This was the site of a Roman saltpan; and quite recently it was stated by the late Mr. W. H. Black, F.S.A., that in his survey of Roman Britain he had been successful in tracing the stadia along the coast from Newhaven to this town. With such evidence of Roman occupation, the existence of a cemetery is not surprising. The spot was doubtless selected from its position with regard to Green Street, its close proximity to the camp, and the soft nature of the ground, its situation being upon the top of a natural mound of light sand, forming part of an outlier of the lower tertiaries. At the southern extremity of the mound the sand is quarried for building material. Reposing upon these sands is about 3 feet of made earth, and the greater part of the whole area is now overgrown with furze bushes.

The operations of the committee were commenced on the 5th June last. Our President, Colonel Lane Fox, F.R.S., E. W. Brabrook, F.S.A., and ourselves were present. The trench first cut was from east to west, it being a likely spot, as suggested by the Rev. John Harison, who informed us that it was near the site where the fine urns were discovered in the year 1825. Three men were employed at this place for the greater part of a day (this section is marked No. 1 on the plan), without any success at all, although we cut down to the virgin soil. We next made a

cutting, about 6 feet deep, at the spot marked 2, but there likewise without any favourable result.

Our attention was next turned to the eastward portion of the cemetery (section iii.), where we cut a trench about 5 feet deep, through about 3 feet of disturbed soil, which is filled with flints, stones, bits of pottery, flint flakes, &c. We soon became aware that we were on likely ground, by the presence of small black patches in the sand, and which we found was caused by charcoal and ashes. A large piece of a broken urn was shortly discovered, with portions of another. Simultaneously with the opening of No. 3 trench, we commenced a trial cutting north and south, at No. 4, particulars of which will be given further on. In section 3 a perfect urn* (No. 1) of red ware was met with at a depth of 3 feet 6 inches below the surface. Upon cleaning it, it fell in pieces, but was subsequently mended. It measures 32¼ inches round the widest part, 15 inches round the base, and is 11 inches high. This urn contained a secondary interment, and bears marks of being turned upon a lathe. There is no ornamentation. Urn No. 2† was discovered close to No. 1, and is the most ornamented one that we have yet met with. It is of dull red ware, rudely embellished with tooled markings, contained within deep concentric lines, and partly by bands caused by its being turned upon a lathe. It is 9⅓ inches high, 30 inches in circumference at the shoulder, and 14 inches round the base. It contained fragments of bones.

No. 3 urn‡ from the same section we were not so fortunate in getting out entire, it being in a very fragmentary condition and consisting of pottery of a light red colour. It is ornamented with two irregular lines round the shoulder, worked with a tool into the form of half hoops, resting upon concentric furrows. It is 8¼ inches high, 26⅔ inches round the widest part at the shoulders, and 13⅓ inches at the base. It contained the usual amount of bones.

No. 4 urn was still more fragmentary. It is of a brownish red ware, with deeply-tooled furrows round the shoulder, in which part the pottery is much thicker than in the others. It bears marks of having roughly tooled ornamentation above the shoulders. Fragments of bones, &c., were found with it.

On the 11th September the excavations were resumed with three labourers. A trench was cut from north to south to a depth of about 5 to 6 feet; the upper surface of the ground was made earth. At the depth of 3 feet from the surface we found flint scrapers, flakes, and fragments of early pottery, which is of a very coarse description of native work. At this depth a black seam occurred, which we cut into, and traced it out for about 4

* See fig. 1, Pl. xviii. † See fig. 2, Pl. xviii. ‡ See fig. 3, Pl. xviii.

feet horizontally. It contained a large number of rough flints, pebbles, some of considerable size, fragments of pottery, bits of charcoal, &c. They all bore evidence of having been submitted to great heat. Much of the clay was red, and had the appearance of rotten roof tiles. As no bone ashes were distinguishable at this spot, we came to the conclusion that this was the place where the funeral pyre was erected. Among the flints we noticed two round flint balls. These may possibly have been used as sling-stones. There were no indications of bones, and this would be accounted for, presuming the spot to mark the site of a ustrinum. It was sometimes the practice of the Romans to wrap the corpse in a sheet of incombustible material, so that, being unconsumed, the bones of the deceased would be all preserved, and at the same time be prevented from mixing with the coals and ashes of the pyre.* Upon finding this blackness of the ground gradually assume its normal appearance, we turned our attention to further opening out that portion of the cemetery where the urns were met with in June last. Having set one man to make a trench at No. 5, about 6 feet deep from east to west, two other men were employed to cut back the ground to meet him at No. 6. For matters of convenience we have numbered these sections. In No. 5, at a depth of 4 feet from the surface, many black patches of *small* extent were found in the sand. They were all at the same level. These were evidently the ashes collected after cremation, as in some of them fragments of bones were observable. These may have been enclosed either in urns or in cloths which have perished, or by wooden coverings† that have met with a similar fate. In one of these patches a bronze nail was found, and in others a flint flake.

What did these interments point to? Were they the remains of people whose relations were unable to find an urn in which the remains would be preserved, or were the relics those only of slaves who had been sacrificed upon the funeral pyre of some great chief or person of authority, and whose remains were placed in an urn in close proximity, as a few feet further in towards No. 3, urns more or less perfect were found. The latter was a common practice, as is recorded by Mr. Llewellyn Jewitt in his "Grave Mounds and their Contents." On page 35 the following remarks will be met with: "In instances where the ashes of the dead have been collected from the funeral pyre and laid in a skin or cloth before interment, the bone or bronze pins with which the 'bundle' was fastened still remain, although, of course, the cloth itself has long since perished. In other instances small stones have been placed around, and

* See "Inventorium Sepulchrale," Fausett, p. 195. † See fig. 3, Pl. xix.

upon the heap of buried bones before raising the mound over the remains. It is frequently found in barrows, where the interment has been by cremation, that there will be one or more deposits in cinerary urns, while in different parts of the mound, sometimes close by the urn, there will be small heaps of burnt bones without any urn. The probable solution of this is, that the simple heaps of bones were those of people who had been sacrificed at the death of the head of the family, and burnt around him."

The bronze nail now found may therefore have been used in place of a pin to fasten together the ashes of the deceased in a sort of cloth or napkin. In the absence, however, of further illustrations, which we may get in future discoveries, this application of the nail is far from certain. Nails were sometimes employed to fasten together boxes or coffers, to contain either personal ornaments for interment, or even for the charred remains of the individual. Bronze nails are less common than those of iron. Representatives of no less than five varieties are given by Mr. Roach Smith, as occurring among the remains at Richborough.* They are at times richly ornamented, and were probably used for decorative work. The bronze pins usually found in such interments as the present are generally without heads. Dr. Thurnam mentions such objects as having been observed by Sir Rich. Colt Hoare in no less than thirty instances, and, with the exception of five, all were from interments by cremation, and with which they were often the only objects. It was assumed by Sir Richard that they were for securing the bundle in which the remains were enveloped; but careful comparison, says Dr. Thurnam, leads to the conclusion that they were implements carried about by their owners which, from their small size, were peculiarly liable to be committed with the body to the grave or pyre, as the case might be.†

In cutting "6," near to the left-hand corner, between 3 and 4 feet deep, we met with a large urn‡ of thick, dark brown pottery. It was much cracked, and the shoulders were broken in by the pressure of the earth above. We were successful in getting it out well, but immediately we began to take out the contents, which were much caked in, the sides gave way in the line of the old cracks. This urn had been rudely repaired before being placed in the ground. It measured 15 inches round the base, and about 25 inches round the middle, and was perfectly plain, having no ornamentation.

Besides the fragments of bones that were in the urn, there were three nails with large heads, and a fragment of metal,

* See "Richborough, Reculver, and Lyme," by C. R. Smith.
† Archæologia, vol. xliii. page 465. ‡ See fig 4, Pl. xviii.

which might have been a coin, or a portion of a fibula, or some other ornament, and a flint flake.*

Within a few feet of the same spot another urn was found, a small one of red ware, thin, having a row of small, vertical, black painted lines upon it, probably round the shoulder. The urn was so rotten that it was all in fragments when discovered, but the whole contents were carefully picked out on the spot. In addition to the usual bones, it contained a bronze fibula,† shaped like a bird's tail, attached to a round disc, which probably was intended to represent the body; the pin was wanting. This specimen affords a good instance of what the Saxons afterwards copied and elaborated.‡ Two small flakes were among the ashes, and a piece of jet.

Another urn, so much crushed that it was impossible to do more than pick out the pieces, was found within a foot of the latter. It was of black pottery, thin, having two concentric lines or furrows round the widest part, with diagonal markings between. In addition to the ashes and pieces of charcoal, it contained a pin of a fibula, a nail, a small lump of fused metal, probably the fibula or coins, and one small flint flake.§

Several other spots were met with at the No. 3 end of cuttings 5 and 6, where the sand was perfectly black from the ashes, but only a fragment of pottery was now and then met with in these patches, with a few small fragments of bone. In one of these black patches, a nail, a flint flake, and a corroded piece of bronze, were met with, which might have been the remains of a fibula; also fragments of what appeared to be burnt slates were occasionally seen.

Of the iron nails referred to, they are but of small size, but at times such objects have been found of considerable length. They have been thus observed in London, Colchester, York, and other places. In Mr. Roach Smith's "Collectanea Antiqua" (vol. 3), he devotes an interesting chapter to the illustration of the subject. He refers also to such nails as have now been found, as having appeared among the remains of bodies, which have either been burnt and deposited loose in the graves, or enclosed in urns of clay or glass. He quotes an example from a walled Roman cemetery discovered by the late Mr. C. Taylor

* See figs. 10, 11, 12, 13, Pl. xix. The fibulæ shown in figs. 1 and 2, Pl. xix. were found loose in the earth at the time of the diggings, and there was no evidence to show that they had been in any urn.

† See figs. 4, 5, and 9, Pl. xix.

‡ They strongly resemble certain bronze fibulæ found some years ago in the Crimea. In some excavations at Kertch, Dr. Macpherson found several such objects, accompanied by human remains. They are many of them in the British Museum, and are described and illustrated by Mr. Roach Smith in the fifth volume of his "Collectanea Antiqua."

§ See figs. 6, 7, 8, Pl. xix.

Smythe, in Lockham Wood, near Maidstone, and excavated under the direction of that gentleman and Mr. Charles, of Chillington House. There was discovered a large number of vases, in one of which, of about the capacity of a gallon, was an iron nail in the midst of calcined human bones; it was perfectly free from rust, 2 inches long, and precisely similar to those of the present day. Mr. Wright also found many long nails in a large barrow near Snodland.

The presence of flint flakes or implements in the urns is a feature of considerable interest. Apart from instances of actual burial in the urns, they have appeared in large numbers among the charred remains, and were scattered about here and there, associated with broken pottery. Such conditions have been noticed by barrow-diggers in other parts of England. Dr. Thurnam mentions, among his Wiltshire researches, the presence of flint flakes and potsherds in considerable numbers, and usually in close proximity to the interments. They are traces, he writes, of a pagan custom, which is illustrated by the well-known line in *Hamlet*, of

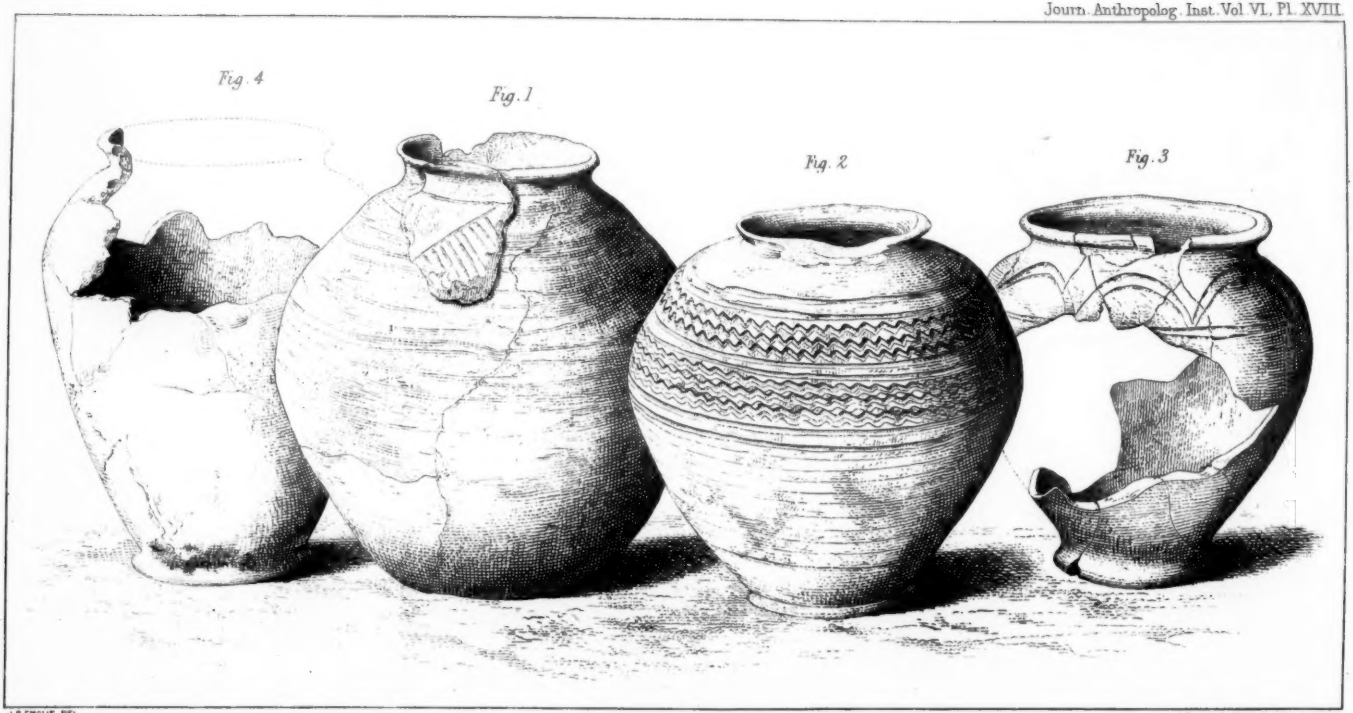
"Shards, flints, and pebbles."

Various explanations of this practice of burying flint implements with cinerary urns have been given. Some attribute a symbolical meaning to both the potsherds and the flints; others suppose the sharp flints to be the knives with which the survivors lacerated themselves in signs of grief. On the whole, perhaps it is probable that the object in view was to lay the ghosts of the dead, and restrain them from walking the earth, it being asserted that flints, and other stones from which fire might be extracted, were efficacious in confining the manes to their proper habitations.*

At Alfriston, a village at no very great distance from Seaford, there existed a large barrow no less than 55 yards long. It is referred to by Gough, who also describes certain smaller tumuli and their contents—in one case an urn of unbaked clay, rudely ornamented, and containing bones and ashes. This was placed beneath a pyramid of flints.

Of the pottery but little need be said. It is rough in character, is probably of native, and perhaps of local manufacture. It resembles in every respect the earthenware that is usually met with in interments of this description. The vessels are for the most part such as would be in daily domestic use, and in the great variety that has been met with, we may have an indication that the cemetery—the first almost of its kind

* Compare Douce's "Illustrations of Shakspere," 1807, ii. 224; Arch. Journal, xxii. p. 117; Archæologia (Rolleston), 42, p. 428; Archæologia (Thurnam), vol. 43, p. 422.



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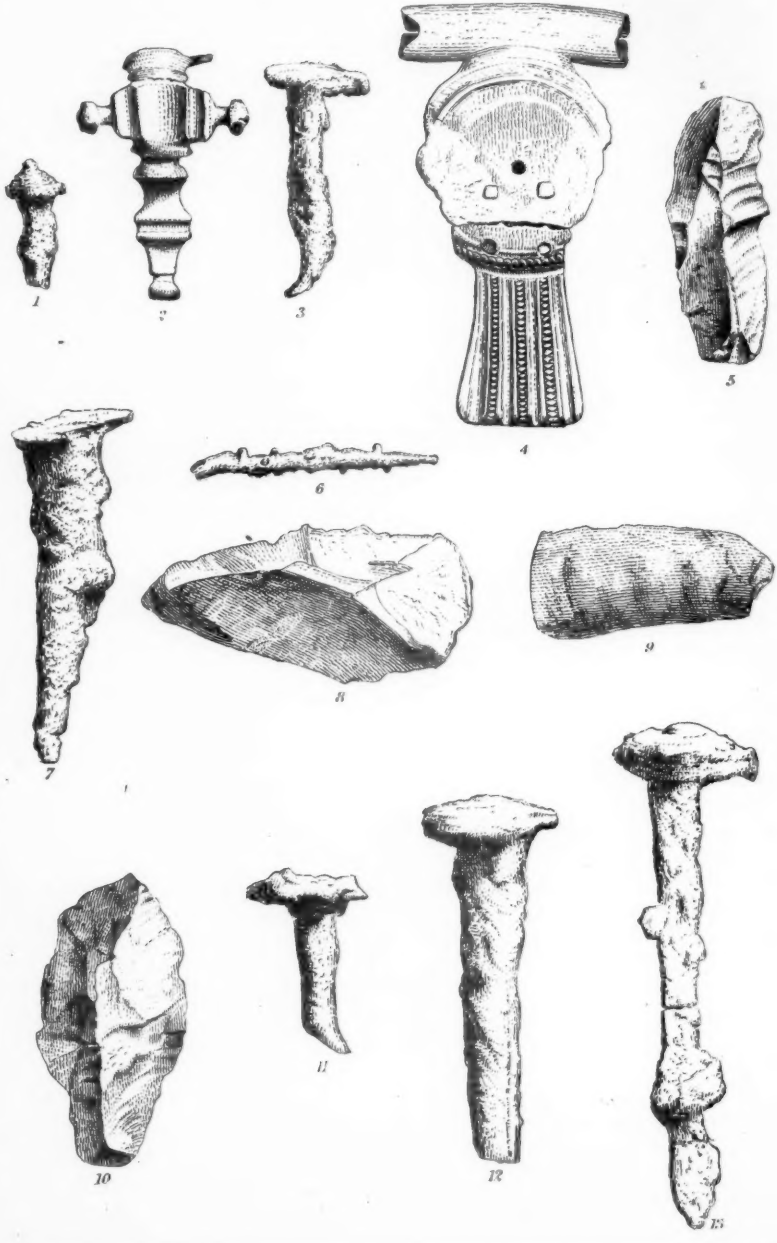
ROMANO-BRITISH POTTERY, SEAFORD, SUSSEX.



J. P. EMSLIE, DEL.

J. P. & W. R. EMSLIE, LITH., LONDON.

SEAFORD, SUSSEX.

that has been found in Sussex—may prove to be of far greater extent and interest than has been hitherto supposed, but much more remains to be done, and it must be admitted that the work belongs to labourers in the field of archæology rather than in that of anthropology. At the same time, the border-land between the two sciences is, to say the least, somewhat indefinite and obscure. Whatever information can be obtained to the advancement of the one can hardly fail to be of service to the other. No accurate knowledge of any site can be gained except by careful investigation of the place itself; and if, from the results of such exploration, we are enabled to derive additional knowledge of the habits and customs of the varied races who have lived and died upon this island, and who in each generation have left some distinctive features and characteristics that have influenced their successors, the accumulation of such facts must be of indirect service to anthropology, if not in its highest aims, yet of sufficient value to justify their record in the proceedings of the Institute.

NOVEMBER 28TH, 1876.

Colonel A. LANE FOX, *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The election of two new members was announced.

The following presents to the Library were announced, and thanks were voted to the respective donors:—

FOR THE LIBRARY.

From Prof. AGASSIZ.—Bulletin of the Museum of Comparative Zoology. Cam., Mass., U.S. America. Vol. III. Nos. 11—16.

From the SOCIETY.—Transactions of the American Philosophical Society. Vol. XVI. No. 97.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXV. No. 174.

From the ACADEMY.—Transactions of the Academy of Sciences of St. Louis. Vol. III. No. 3.

From the BOARD.—Seventh Annual Report of the State Board of Health of Massachusetts. 1876.

From the EDITOR.—Révue Scientifique. Nos. 21 and 22.

From the EDITOR.—Nature (to date).

The following exhibitions were made:—

A Mexican hammock, which had taken the first prize at a hammock show in the city of Mexico, 1876. Exhibited by Miss GRAHAM.

Three limbings or spears, one with a wooden sheath to the head; a sundang or long creese; and a golok or jungle-cutting knife—all from Kobah Lama, near Qualla Kangsar, Perak. Also two clubs, ornamented with feathers, of the Accoway tribe, and one four-sided club of the Carabisce tribe, from British Guiana. The above weapons were exhibited by permission of Captain Burgess.

A Bosjeman skull, exhibited and presented by Mr. Edwin Canton.

Several terra-cotta votive statuettes from Tanagra, exhibited by Col. Lane Fox, by permission of MM. Rollin and Feuardent.

The President then read the following paper on the last-mentioned exhibition:—

Exhibition *of* Votive Statuettes *found at* Tanagra, Beotia.
By Col. A. Lane Fox.

I exhibit this evening, through the kindness of Messrs. Rollin and Feuardent, a series of terra-cotta statuettes lately discovered at Grimadha, the ancient Tanagra, in Beotia, which, not only on account of their artistic merits being of the best period of Greek art, but also on account of the interesting question arising from their association with the interment of the dead, appear worthy of the attention of anthropologists. I should mention that my information respecting these objects is drawn from a paper by M. Rayet, Professor of Greek in Paris, addressed to the *Gazette des Beaux Arts*.

Tanagra is situated in the valley of the Asopus, about 10 English miles from its junction with the channel of Egripo, and facing Mount Parnes, which is on the opposite side of the valley, to the south. It is some 15 miles or more to the east of Thebes, and 25 miles or thereabouts to the north of Athens. It is described by Dicearcus and Pausanias as standing high, and surrounded by escarpments, with temples situated on terraces, and houses ornamented with encaustic pictures. It was the birthplace of the poetess Corinna, and a tomb was erected there to her memory.

At present but little remains of the town; the ruined walls, built partly of rectangular and partly of polygonal blocks, present the appearance of a town of considerable extent. In the interior nothing is seen but some terraces, a few foundations, and a theatre in a state of great decay, with a few constructions of brick of the Roman era. The country around Tanagra is now entirely deserted and untilled, and it is rarely visited by travellers.

About five years ago the inhabitants of the villages of Bratzi

and Skhimatari, in the valley of the Lari, close by, discovered a number of tombs in the fields which had never been opened. They consisted of stone troughs, about 6 to 7 feet in length, and a little less than 3 feet in depth; the sides were from 20 to 30 centimetres thick, and each of these coffins was covered by three transverse slabs, which sealed it hermetically. They were found to be of two different ages; in both, the stone coffins were of the same size and external appearance, but they differed greatly in their contents. The earlier ones contained a number of vases of the style formerly termed Corinthian, but which are now known not to have been confined to Corinth, but to have been prevalent in other parts of Greece, and even in Etruria, in the archaic period, ornamented with representations of animals, more or less boldly drawn, and the impression of signs and symbols, the style of which had probably its origin in Lydia and Phrygia. In the same ancient part of the necropolis were also found small earthen figures of inferior workmanship, rudely modelled, and composed of clay badly kneaded and full of pieces of flint. They represented people in a standing position, and the women were only to be distinguished from the men by the long tresses falling over their shoulders. They were painted for the most part black and yellow.

Not far from this part of the cemetery, and close to the village of Skhimatari, the name of which it may be observed *en passant* (*Σχηματαριον*) signifies by its etymology the manufacture of little figures (*σχηματα*), another set of coffins of later date was discovered. The stone coffins found here were constructed in exactly the same manner as the others, from which they could not be distinguished externally, but the sides in the interior were lined with a coating of stucco about half a centimetre in thickness or thereabouts, and decorated with paintings representing generally architectural ornaments, but sometimes landscapes or hunting scenes, painted in colours which were often quite fresh when first exposed to the air. The skeleton was at the bottom of the sarcophagus, but instead of the numerous vases found in the earlier graves, one only was found in these close to the head, of large size, more than a foot in height and quite plain, without figures or ornamentation, evidently intended to contain drink for the dead. Most of the coffins had nothing else in them, but some, evidently of the richer class, contained in addition a certain number of terra-cotta statuettes, of which those now exhibited are specimens. Usually not more than one or two were found, but sometimes five or six, placed wherever any space was found between the skeleton and the sides of the sarcophagus; sometimes broken, and at others erect and entire; sometimes damaged by weathering, but occasionally,

when the tomb had been hermetically sealed, the paint upon them was as fresh as on the day they were interred. Besides those found in the coffin, others were sometimes found in the soil surrounding it, occasionally to the number of 20 or more, and with one interment as many as 50 figures are said to have been discovered, but, unlike those in the interior of the coffin, they were generally broken into small pieces by the effects of moisture and other destructive elements. The statuettes averaged from 6 to 10 English inches in height, the largest being 15 inches high, and the smallest 3 inches. The front part only is modelled with care, and at the back there is usually a rectangular aperture, cut while the clay was soft, which was made to facilitate the evaporation of the moisture and admit the heat of the oven uniformly into the hollow interior. The majority of them have been placed upon a square plinth before baking, so that the adhesion is not very strong, and they are easily removed from it by a blow.

All the statuettes have been originally formed in a mould, but their artistic value arises from the fact that every one has been re-touched and perfected by the fabricator before the clay hardened, so as to give an individual character to each. The expression of the countenance, of which many different phases are seen in the specimens exhibited, appears in each case to have been added afterwards, and some of the heads have received so much attention that they may almost be said to have been re-modelled. One of the female statuettes which is now in my collection deserves special attention on account of its beauty and attitude of repose. The body is thrown backwards on the right leg, as if listening to some communication whispered in her right ear, and which, from the expression of the countenance, appears to be received with favour. The head, to counterpoise the position of the body, is inclined forward, and slightly to that side. The left elbow is supported in an easy position in front of the body by the right hand, and in her left hand she holds a fan in front of her face. Nothing could better exemplify the refinement of the age than the attitude of this figure. It is far removed from anything that could be seen at the present time amongst the beauties of our casinoes and music halls, and we are impressed at the first glance with the fact that there were ladies in Greece in those days.

Some of the figures are evidently copies of the same original, although formed in different moulds. Others can be recognised as having been turned out of the same mould, and by a comparison of these it is easy to determine how much is due to the uniformity of the mould on the one hand, and to the subsequent manipulation of the artist on the other. All the salient parts,

the accessories, the coiffure, flowers, and objects held in the hand, are subsequent additions.

All the figures without exception were coloured from head to foot. For the clothing the chief colours employed were blue, red, and a kind of rose-tint The blue is a silicate of copper; the red an oxide of iron. Besides these are found more rarely violet, green, white, grey, black, and yellow. The hair is always painted a brownish red colour, by which means the artist appears to have reproduced, in so far as the poverty of his palette enabled him, the brilliant golden chesnut colour which, according to Dicearcus, was the ordinary tint of the hair of the Beotians, and which, according to the author from whom I quote, is still seen at the present day in those parts of Greece where the race has preserved its purity. There is evidence that these works of art are the production of different artists, and M. Rayet believes that, in addition to Tanagra, manufactories of them were established at the adjacent towns of Thisbe and Aulis.

M. Rayet considers that the whole series of figures are the work of one period, and that they were produced during a comparatively short space of time. Nowhere do we see any indications of a transition from the conventional Asiatic style that is found in the earlier graves, nor are there any indications of decay; and although the proportions are faulty in some of the inferior specimens, all appear to belong to the best period of Greek art—at a time when the artistic sentiment had already reached refinement, and the powers of the humblest workmen were stimulated by the sight of innumerable masterpieces.

There is great difficulty in determining the age, owing to the unfavourable circumstances under which explorations of this kind are conducted in Greece, where the exportation of works of ancient art are prohibited, and excavations have necessarily to be made secretly; but from all the information that is accessible, it appears that they may be attributed to about the fourth century before Christ.

But the point which serves chiefly to render these figures of interest to anthropologists is the question which has been raised as to the objects which they were intended to serve in the graves. The well-known custom of inserting in the graves of the archaic period statuettes representing deities has led some persons to assume that those of a later age also represented the gods of the Greeks. Accordingly the characteristic peculiarities of the several figures have been studied by competent authorities from this point of view. One has been attributed to Hermes, another to Demeter, a third has been said to represent a Gorgon, and so forth. But, in opposition to this opinion, the director of the German school at Athens, and with him

most of the Athenian archæologists, who have had the best opportunity of studying the figures with all the circumstances connected with their discovery, have come to the conclusion that, viewing the individuality observable in the expression and attitude of the statuettes, the ornamentation, costume, and the objects held in the hands, there is nothing to indicate that they have any mythological import, but represent merely the figures of persons who were familiar to the domestic life of Tanagra at that time. They believe that they were originally constructed to ornament the dwellings of the people, and at death were deposited by their friends as objects with which the deceased person had been associated in his lifetime, and as representing the pleasures which it was hoped might accompany him in the future state.

To this view M. Rayet further adds the hypothesis, that as the practice of immolating at death the wives, slaves, and dependants of the deceased person had no doubt existed amongst the early Greeks as amongst others whose ceremonial customs were derived from the East, these figures are to be regarded as the substitutes for live offerings, which in the course of time were introduced, in the survival of this custom. It may however, I think, be doubted whether the transition here supposed from the victims themselves to the images of them is not more abrupt than analogy would lead us to consider probable. Intermediate phases would probably intervene; animals would in all probability be substituted in the first place, or the offering up of animals would survive the offerings of human beings, and by this means the superstition would be directed into another channel. It is difficult to conceive that so important a change as the abandonment of human sacrifices could be bridged over by a subterfuge of this kind. On the other hand, parallels are not wanting in Oriental rites which might lead us to believe that such a change as this might actually have taken place. Mr. Franks, whose rich store of anthropological knowledge is so rarely at fault in such matters, has referred me to a passage in Jacquemart's "Histoire de la Ceramique," 1873, p. 92, which is as follows:—"There lived about the Christian era in the province of Idsoumi, Japan, an athlete of the name of Nomeno Soukouné, who used to make earthenware, and produced images to substitute them for the slaves which till then it was usual to bury with their masters." Mr. E. B. Tylor, quoting Siebold,* says that "the Japanese form of modern survival of human sacrifices at funerals is to substitute for real men and animals images of stone or clay or wood placed by the corpse;" and he also says that in China "the ceremony of providing

* "Primitive Culture," vol. i. p. 418. Siebold, "Nippon," v. p. 22.

sedan bearers and an umbrella bearer for the dead, and sending mounted horsemen to announce beforehand his arrival to the authorities of Hades, although these bearers and messengers are only made of paper, and burnt, seem to represent survivals of a more murderous reality."

Notwithstanding this, however, it still appears to me more probable that as we know the practice of depositing the images of the gods prevailed amongst the early Greeks, whereas the custom of human sacrifices is, to say the least, doubtful, the use of the images had its origin in mythological sources. Take, for instance, the case of the Scythians, whose custom of offering up the wives and dependants of the deceased was probably derived from the same source, assuming that such a custom did actually exist in Greece. Herodotus* says that in the open space around the body of the king they buried one of his concubines, first killing her by strangling, and also his cup-bearer, his cook, his groom, his lacquey, and his messenger, six in all, besides a horse and other objects. In the tomb of a Scythian king, opened at Kertch by the Russian Government in 1832, and described by Dubois in his "Voyage Autour du Caucase,"† there were found in the space outside the sarcophagus of yew wood which contained the king, the skeleton of his queen, with one of his attendants, and a horse; inside the sarcophagus, with the king and his weapons, were five small statuettes of electrum. The objects in the tomb showed abundant traces of Greek influence, and are attributed to about the same period as the Tanagra images, viz. about B.C. 400—350.‡ "Greek ideas had apparently modified the old barbarism so far as to reduce the number of the victims at the king's death from six to two," and it might perhaps be assumed, upon the human sacrifice hypothesis of the origin of these figures, that the five statuettes found inside the sarcophagus with the king were the substitutes for the remainder of the victims of which Herodotus speaks; but, according to the accounts given by both Dubois and McPherson,§ these statuettes represented Scythian deities: one amongst them being recognised as the Scythian Hercules.

In more civilised regions the sacrifice of the wife and attendant would be dispensed with, but the statuettes of the deities would be continued. By degrees the belief in the gods would die out, but the use of the votive images would be preserved, their significance would be changed, and in place of statuettes representing the gods, the ordinary household figures in vogue at the time would be substituted. This last stage in the develop-

* Herodotus, Book iv. chap. 71. † Atlas, 4me. série, pl. xviii.
‡ Rawlinson's "Herodotus," vol. iii. p. 51.
§ "Antiquities of Kertch," by Duncan McPherson, M.D., p. 63.

ment of the superstition appears to have been reached in Tanagra at the time of the fabrication of the figures before us, which are obviously devoid of any mythological signification.

As bearing on this view, it may be mentioned that the statuettes are almost invariably females, rarely are male figures found. It would be interesting if it could be ascertained whether the female figures were associated with graves of men, but the unfortunate conditions, to which I have referred, under which Greek explorations are conducted appear to have precluded the possibility of making this observation.

The subject, however, is one upon which different opinions may be entertained, and useful information may perhaps be elicited by the discussion of it.

DISCUSSION.

Mr. HYDE CLARKE said it was desirable more information should be obtained, for it did not follow because the sculptures were beautiful that, therefore, they were Hellenic. Under the conditions of Etruscan, and of the objects discovered in Cyprus by Dr. Schliemann, they might be derived from that pre-Hellenic race from which the Greeks received their original culture, and whence they continued to sustain it. The schools of Asia held their ground against the school of Athens, and it was rather Asia that acted on Hellas than Hellas on Asia. Bœotia we know to have received its mythology from Asia, and we may, as a popular illustration, call it Canaanite, for there we found Athamas, Agave, Palæmon, and Echion. There appeared to be more female than male figures in the collection, and they were all in ordinary costume, and might possibly be portraits of wives devoting themselves thus symbolically to accompany to the other world their deceased husbands. As a matter of race, the Sumerian or Khita race, which preceded the Hellenic, was one of the handsome races of the world.

The PRESIDENT said in reply that he thought the style of art exhibited by the statuettes precluded the possibility of their being considered pre-Hellenic.

The following papers were then read by the Directors :—

The PHYSICAL CONDITION *and* DISTINCTIVE CHARACTERISTICS *of the* LAPPLANDERS, *and the* RACES *inhabiting the* NORTH COAST *of* EUROPE. By ALEXANDER HUMBOLDT, v. H. v. d. Horck.

INQUIRIES have arisen as to the prehistoric population of Northern Europe. Philologists have attempted to prove that the languages of the Lapps, Finns, and the tribes of the Ural Mountains, are of common origin. At the same time, craniology shows marked differences, the Lapps being brachycephalic, the tribes of the Ural Mountains being decidedly dolichocephalic.

Whether the climatic influences, to which the Lapps have been subjected in their more northerly habitations, have not been conducive to changes, which may account for the present existing physical differences; whether or not, in fact, owing to the penuries, the extreme deprivations, the unfavourable mode of life for the normal development of the body, the Lapps have degenerated into an inferior, into a pathological, race, is a question of great interest, and is still a subject of grave dispute, and is worthy of patient scientific research, which may open new chapters in the history of man, of whom at present our knowledge is extremely limited.

Having in the preceding year taken charge of an expedition to the Polar Seas for the purpose of scientific exploration, I made preparations for entering into a special anthropological study of the inhabitants of the North Coast, and obtained numerous measurements, drawings, photographs, plaster-casts, as well as a valuable collection of bones, skulls, &c. The Lapplanders—who, in their own language, call themselves Sabme, or Saame—may be divided into two classes: the "Nomadic or Mountain," and the "Sea or Fish Lapps." They differ but little in their outward appearance. Many of the latter were originally mountaineers, but, having lost their herds of reindeer, settled themselves along the shore, and maintain themselves by fishing, or gathering the eggs from the great breeding-places of the waterfowl in the vicinity of the sea-coast.

The Nomadic or Mountain Lapps are, as a class, stronger, healthier, and better developed, owing to the hardy, roving life they lead. They rarely intermarry with the Quains (Finns) or Norwegian settlers, thus preserving the purity of their blood, and their own peculiar characteristics. These tribes, although spread over Norwegian, Swedish, and Finnish Lappland, even extending into the Russian territory, exhibit respectively the same characteristics typical of the race. They are of diminutive stature, that is, much below the medium height of other European races. From a series of measurements, I found the average height to be about 1.5 metres.

The head is remarkably typical, the form of the skull round, exceedingly short from base to crown, but of great breadth, giving the whole head a compressed appearance as to height.

Average index of breadth of head above the ears, 88.4 mm.
Average index of height .. .. .. 73.8 mm.

These measurements are taken from living subjects, and therefore are somewhat larger than if taken from the skull.

The face is extremely broad, measuring between the zygomatic processes 109 to 116 mm. (according to my personal observations), but diminishes rapidly toward the chin, which is

rather sharp and pointed—in fact, the inferior maxillary bone is small and delicately shaped.

The eye-openings are usually small and irregularly shaped, slanting downward at the outer corners. This may be owing to the peculiar formation of the orbit, as observed in the skull. The orbit is rather capacious, but frequently the supra-orbital bone and the inferior margin project forward, so that the entrance of the orbit is thus narrowed, which is not usually observable in the skulls of other races. The border of the orbit has also a somewhat irregular shape, the lower outer edge being perceptibly enlarged, and for this reason the opening between the eyelids is necessarily slanting, but, unlike the Mongolian type, it extends downwards. This view is also taken by Professor Virchow, with whom I am now making measurements of the skulls recently obtained from the north. The nose has an almost uniform shape, and is eminently characteristic. It is short, flat, and very broad, especially around the nostrils. The oral orifice is generally very large, lips not very thick, and in old persons I have sometimes observed them very thin, and the mucous membrane showing exceedingly fine, thin folds. The teeth are excellent, and only in a few cases did I come across any decayed or missing, and these were molars. The ears are small, and remarkably well shaped. The hair of the head is smooth and straight; that of the men rather coarse, whilst that of the women is long and somewhat finer. The beard, eyebrows and lashes are of scanty growth, sometimes scarcely perceptible. As far as the colour of the hair, skin, and nails is concerned, it is difficult to establish any criterion.

The current opinion that all are blond that belong to the Indo-Germanic race, and all that belong to the Turanian race are dark, does not always agree with the facts; for we find, as I have shown in a series of anthropological tables and charts of the northern inhabitants, that many of the Lapps are blond, some having light golden hair and blue eyes, whilst among the Finns I found persons with perfectly black hair and eyes. The colour of the skin is subject to great individual differences. It is much lighter than one would suppose at first sight. The uncleanliness of the Lapps is proverbial, and the skin is much darker and browner-looking, because it is impregnated with a mixture of grease, dust, sweat, &c., which are deposited in layers —for nobody can say how long—but producing an indescribably dirty colour. When wishing to determine the complexion, however, I always took the precaution to wash certain spots of the body with soap and water, rendering them as clean as circumstances would allow. I thus found the tint was much lighter Usually it is a dirty, grayish white, or light olive

brown, although I have also seen children and young girls with beautiful clear white complexions and red cheeks; these were in general accompanied by blue eyes and golden hair. As far as the bodily strength of the Lapps is concerned, it is difficult to form any standard opinion, as the individual fluctuations which I observed in making measurements with Regnier's dynamometer were very great. Still I have found the men, as well as the women, strong, and possessing great endurance, especially on the march. As regards any specific body-smell, I can only say that I found none such, although when marching in the rear of the Lapps who carried the baggage, or when in the boats with them, the breeze would waft a disagreeable, sweaty smell. The same was the case when they pulled off their shoes and removed the fine hay which, after pounding into soft fibres between two stones, they used as covering for the feet. This they would hang up to dry before the camp-fire. The conditions under which the Lapps live are not favourable. Their food is often very poor and insufficient. It is mostly animal food—reindeer, wild beasts, birds, and fish. Besides, they gather berries, especially the "multebaer" (*Rubus chamemorus*), which are found in great abundance in the extensive swamps. These they preserve for winter use, as it forms their only vegetable. They will often go to the whale-fisheries on the coast to gather pieces of fat, blubber, and meat, standing around and eagerly watching their chance to secure the morsels, even eating them raw. They are exceedingly fond of grease, fish-liver-oil, &c.

In taking my casts of the face I was compelled to rub the skin with olive oil, and always had great difficulty in restraining them from licking it away, at least so far as they could reach with the tongue. To prevent this I afterwards applied stinking train oil, but with no greater success. The only bread that the Lapps have is the hard, dried cakes which they obtain from Finland and Norway through trade. The habitations of these people differ very much. Those of the "Nomades" consist simply of tents, constructed of a few poles, over which skins of the reindeer are laid. These tents have one large opening at the side, serving as a doorway, and at the top a smaller one through which the smoke and stench can partially escape. The "sea Lapps," and those which are called colonists because of their having settled in the vicinity of the missionary houses —as in Karasjokk, Kautekeino—have permanent dwellings, small cabins made of logs, the crevices being plastered or filled in with moss, stones, and mud. In the summer, however, when they leave for the shores of the lakes and rivers to fish, they build small huts of birch or fir-tree bark, except when they

carry their skin tents with them. The clothing of the Lapps is uniformly the same throughout the north, excepting the headdress; the latter, among the Swedish Lapps, resembling a sugar-loaf, whilst those of Norway are very curiously shaped. The men wear a high cap, which has a broad band nearly 6 inches in width, whilst the top resembles a thick, heavy cushion, about a foot square. The women, on the other hand, wear a cap, into which a large carved piece of wood is inserted, giving the whole the appearance of an ancient helmet. In winter a large fur coat, or "peske," of reindeer skin, with a high collar, is worn, the leggings and the curiously-pointed shoes being of the same material, the hair turned outward. In summer they wear thick, coarse woollen stuffs, generally bright blue, green, or red, and the edges trimmed with coloured stripes of cloth of the most brilliant hues. As they have no pockets, it is exceedingly curious to see the manner in which they stow away everything inside of their coats. They fasten them around the waist by a broad belt, and make a forage-bag of the upper story, stuffing into it articles of clothing, shoes, eatables, the fine grass with which they cover their feet, whisky bottles, and other articles not to be mentioned, until the coat bulges out like a huge sack, causing the individual to appear extremely funny, with his short, crooked legs, looking as though he had been stuck through a barrel.

The belt, made of reindeer or bear or wolf-skin, is ornamented with beads or gaudy-coloured ribbons, brass rings, &c. From the left side of this belt is suspended a huge sheath-knife, with several small pouches for powder, tobacco, &c. Besides this, there are little pendant strips of leather all around, to which are attached the teeth of wild animals, such as the bear, glutton, and wolf, which are the hunting trophies of the animals captured in the chase. Again, a talisman of brass, or a curiously-shaped figure, forms a part of this ornament. The majority of the Lapps belong to the Lutheran Church of Scandinavia, missionary houses having been erected everywhere. Nevertheless, the wearing of mystical charms and relics plainly indicates that they still adhere to their heathen superstitions in many things. Many of them can read and write well in their own language, and I have in my possession some letters written in a clear, legible hand.

The wealth of the highland Lapps consists in their large herds of reindeer, which sometimes number many thousand heads, all owned by one man. They slaughter many of them yearly, and sell the skin, horns, and meat, which is mostly dried. So soon as the summer approaches they leave their winter homes amid the fir woods of the valleys, where their

herds throughout the severe cold have found sufficient moss to feed upon, and journey with their entire families, tents, dogs, and deer, toward the sea-coast, to the hills bordering on the Tromsoe Valley and Altenfyord. Still, the greater number go to the high plateaus of the Spirte-njarg, Kjorgosh-njarg, Ragonjarg, and Varjag-njarg, the peninsulas lying between the Porsanger, Lase, Tana, and Varanger fyords. Here they are secure from the insects infesting the woods, which annoy both man and beast, and here too they find a more comfortable temperature, as these high northern headlands are swept by the cooling winds coming from the Arctic Ocean. Thus they wander about during the brief Polar summer, each family by itself, making it extremely difficult to hunt them up. I had an opportunity of seeing immense herds of reindeer, especially on one occasion when they were driven by a warm S.W. wind toward the coast. I saw as many as 8,000 to 9,000 gathered together, covering the hills as far as the eye could reach, whilst their huge horns, towering above their heads, resembled a forest of leafless branches.

The Lapps are very skilful with the gun, but more especially with the lasso, which they throw with wonderful accuracy. The Fish or Sea Lapps subsist mainly by fishing. Around their huts and tents one may see thousands of dried fish and fish heads strung together and hung upon poles. A few small boats lying on the water's edge, in which they sometimes venture far out at sea, besides a few nets and lines, sometimes a reindeer or two, comprise all their possessions. They present the same physical type as the mountaineers, so long as intermarriage has not taken place with other races. I was fortunate in securing a number of plaster-casts of living Lapps during my stay on the north coast, the only ones in existence, besides obtaining a large collection of skulls. The difficulties I had in securing these impressions were great, for I had to overcome their superstitious fears, which were aroused, especially when I attempted to take measurements with the craniometer. I had with me plaster of Paris in well-sealed cases, and proceeded in the usual manner to take impressions of the face, ears, teeth, hands, &c. The impressions of the lower jaw were, anthropologically, of the greatest importance. The peculiar formation of the maxilla inferior being eminently characteristic of the Lapp skull, differing as it does in this particular from that of almost any other race.

In procuring the skulls, which had to be taken from their old heathen burial-places, it was necessary to proceed with extreme caution, as the people consider them sacred, and guard the graves from all intrusion with superstitious care.

These ancient burial-places are usually near the hallowed groves or places where they were accustomed to assemble for worship, and they are still designated by the remains of stone pillars, or by the native name still attached to them, such as "Piattsam-dudder," holy mountain, or the "Patts jokke," holy river.

These tumuli are on the edges of the cliffs bordering the sea, on the sides of the mountains, or the steep shores of the lakes and river banks. The graves are of different forms. In some cases caves or crevices in the steep, almost inaccessible walls of the cliffs are selected, the body being deposited, and the opening closed with flat stones. Again, others are formed by cutting out the corners of two large boulders, and afterwards rolling them together, so as to form a sort of arched roof, underneath which a shallow excavation is made, and then the orifice is closed, as in the first instance, by piling rocks around it. Others again are deep, four-cornered holes dug in the ground, which are lined with stones. After depositing the body, the grave is covered with layers of stones, like tiles on a roof, until entirely shut in and protected from animals, as well as shielded from rain and snow. These latter graves have the appearance of huge stone heaps at first sight, but upon closer inspection one detects a certain regularity in the pile which indicates that they have been placed there by the hand of man. The bones are rarely found in a state of perfect preservation. The dead are often found wrapped in thick layers of birch bark, which have been sewed together with the sinews of animals. These coverings are often richly ornamented with curious drawings of the bear, wolf, reindeer, &c., as well as pictures representing the former life of the Lapps. Sometimes the body is packed in a "kierres," or kind of small sled, boat-shaped, which is still in use among the Lapps. Sometimes with the human skeleton we find the remains of animals, fish, and birds, leading one to the conclusion that it was customary to sacrifice these at the grave, as a part of the ceremony of burial—the mourners feasting, however, upon the slaughtered animals, wisely picking the bones clean before depositing them in the grave, as companions for the departed on his journey to the happy land. The bones have been found cracked open, evidently for the purpose of extracting the marrow, and it is worthy of remark that these have the same peculiar appearance, and are split in the same peculiar manner (diagonally from one end to the other) as those found in "Kjokken-moddinger" of the Danish coast, where the remains of mammalia are found among the sea-shells, which in the course of time have accumulated so as to form high walls or banks. We also find in the graves bows, arrows, spears, fishing

apparatus, harpoons, snow-shoes—the arrow-heads and points of lances being mostly bone or horn, those manufactured from flint being less frequently met with—besides these, pieces of quartz, splinters, large pieces of wood, and strips of birch and fir-tree bark.

Mr. Nordvi, who has opened many graves on the north coast, speaks of a kind of snail which is found in them, called "Hundsjael" (dog-soul), which is often buried instead of the dog itself, which is to the Lapps a valuable animal.

Let us now hastily glance at the "Skolter," or Russian Lapps. The term "skolter" is said to have its origin in the fact that formerly these Lapps were affected with diseases of the scalp, causing loss of the hair, whilst among them I detected nothing of the kind. It is my opinion that these people are in no way related to the Lapps which we have been describing, their physical and psychical characteristics are so entirely distinct, except in some isolated cases where intermarriage has taken place. There are in Russian Lapland some families of mountain Lapps which have evidently wandered over from the Scandinavian territory.

The "Skolter Lapp" bears a close resemblance to the common Russian serf or "Mujik," the features being more regular than in the races we have referred to, the forehead higher, the breadth of the face not so striking in comparison with its length; the shape of the eye not having the peculiarity we have mentioned, but more regular in its outline; the nose, instead of being flat, quite prominent, and the whole visage more strongly and heavily marked. The legs are better proportioned, as is also the entire body. The men have a long shaggy beard, whilst the women are comelier and more pleasing. Their dress is similar to that of the peasants living in the north of Russia. They are exceedingly filthy in their habits, and are usually covered with vermin. Their houses or huts surround or are adjacent to those of the missionaries; they are extremely low and narrow, being built of logs and plastered with mud, the crevices filled in with moss, &c. They are usually surrounded by several small storehouses, which are erected upon posts driven into the ground; thus lifted up several feet from the earth, most likely to keep the animals, such as the lemming, from destroying their stores.

So long as the accumulation of evidence as to the relationship of these races is so small, and the present existing differences are so strong, we must be content to look upon the Lapps and Finns as distinct races until further research may possibly prove the prehistoric Lapplander to have been a Finn.

The TRIBES *of* BRITISH GUIANA. By the Rev. W. HARPER.

THE Indian tribes of British Guiana belong to what has been called by several writers the Brazilio-Guariani nations, and are for the most part of the Caribian race. The Caribs, from whom the group receives its name, were in the sixteenth century one of the most widely spread tribes in South America, extending from the borders of Brazil to the Oronoco, and along the line of the lesser Antilles as far as Porto Rico. The natives of British Guiana are generally said to belong to five tribes, namely, the Arawacks, the Caribs, the Accawoi, the Macuri, and the Warraus. Representatives of several other tribes are, however, frequently met with on British soil. These people, being merely remnants of a few barbarous tribes found, for the most part, between the Amazon and the Oronoco, cannot now be said to be very numerous or important, but they are extremely interesting to those who have seen a little of them in their own settlements. Naturally desiring to know a little more about them, we feel inclined to ask such questions as, What is their origin? How came they to Guiana? What is their history there? Are they the original inhabitants of the country, or have they succeeded other races no longer extant? However interesting such questions may be, they cannot be answered in a very decided manner. The history of America previous to the discovery of Columbus is, at the best, very uncertain, and very little is known of the tribes of Guiana. There are, so far as I know, no Indian ruins in that country, and whatever the people may have been capable of in former times, they now seem to have no means of their own for recording events. Their only remnants of the past are a few earth-mounds, a rude sort of hieroglyphics carved on the face of the rocks called tumehni, and oral traditions. Some of the mounds have been opened, and are said to contain, among other things, human bones so fractured as to afford strong evidence of the cannibalism of the people who raised them, but beyond this they reveal nothing of any importance. The tumehni are found on rocks about the banks of the rivers, especially near the falls and rapids where canoes would have to stop in ascending into the interior of the country. These being not only the work of men, but of men in a higher state of civilisation than is now to be found among the natives of Guiana, had, no doubt, some significance at the time when they were executed, though the present tribes appear to know nothing about them. The carvings themselves, being generally rude delineations of men and animals, are very difficult to decipher, and the subject has unfortunately not received quite the attention which it seems to deserve. It has been

observed by travellers that they are very numerous, and extend over a large tract of territory. They have been ascribed to the Caribs, and it is not improbable that this race in its early days was acquainted with them, but lost its knowledge of them during the war and turmoil which succeeded the discovery of America by the Spaniards.

These tribes have also a large number of oral traditions, some of which have been collected by missionaries and travellers. These closely resemble other American traditions, and have no doubt often a nucleus of truth in them, though it is mixed up with much that is puerile, absurd, and incredible, so that the legends themselves are of little historical value.

Being thus in a great measure deprived of material assistance from anything to be found among the people themselves, we are left to gather what we can infer from the more certain parts of pre-Spanish American history and from such scraps of information as have been picked up since the discovery of Columbus.

The centres of American civilisation in pre-Spanish times were Mexico and Peru. Each of these had its own development, but the latter was much inferior to the former, though it is doubtful if this inferiority is due to the fact that it was the younger in point of time. There is, however, good ground for supposing that Mexico was the real centre of much that occurred on the eastern side of the continent previous to the time of Cortez, and that the inhabitants of the eastern plain of South America were much more influenced by what took place on the plateau of Anahuac than by what transpired on the table-lands of Penn. Even in those times the Andes and the Rocky Mountains were more effective as the boundaries of nations than the Gulf of Mexico and the Caribbean Sea. If we therefore had a clear account of what occurred in Mexico and its neighbourhood in early times, we would possess the key to much that is now almost unintelligible. The light, however, which early American records throw on the subject is dim and meagre. From the traditional explanation of the historical paintings of Mexico, we gather that several of the more powerful Mexican races came to Anahuac from the north or north-west. These migrations appear to have extended over a long period, and each fresh arrival would naturally cause considerable commotion—the stronger or fiercer tribes subduing or displacing the weaker or less warlike. Even as far south as Nicaragua the Spaniards found people who had come from Mexico, and these in their turn had displaced others, which probably passed on to less eligible positions. In the struggle the stronger tribes would occupy the more favoured places, and the weaker would frequently be compelled to go where there was room for them.

Each movement in the north caused a general commotion, which shook, displaced, or broke in fragments various tribes on the American continent. The offshoots and fragments of such tribes, not being able to maintain an independent position in more favoured localities, were sometimes driven into lowlands and swamps like Guiana. There are several ways in which they might come from the north to the eastern plain of South America, when they would be ultimately pressed into Guiana. They might come overland across the Isthmus of Darien, or by sea along the coast, working their way from point to point; or some of those well acquainted with navigation might put out to sea, and reach the West India Islands. Then passing from one island to another, until they came to Tobago and Trinidad, they might pass over from them to the South American Continent. In one or other of these ways probably all the tribes of South America came from the north, though it would now be quite impossible to prove this migration. In the lapse of ages the characteristics of some of the tribes would be lost, and many of them would acquire habits suited to the districts in which they settled. Some traces of such movements have, however, been discovered among the Arawack and Carib tribes, and these will probably serve to illustrate this subject.

When Columbus discovered the Bahamas and West Indies, he found on the former, and in some of the larger of the latter islands, a mild, quiet, hospitable people, who were very shy and retiring. These appeared to have belonged to the same race as the Arawacks of British Guiana, though inferior to them in courage and hardihood. These, according to a Carib tradition, came from Florida, and after peopling the whole of the West Indian Archipelago, passed into Guiana. The Arawacks of Guiana are now the only representatives of this race, the inhabitants of the larger West India Islands and the Bahamas having all become extinct under the Spaniards. The Arawack race was found by Columbus in Cuba, Jamaica, Hayti, and Porto Rico. In the smaller islands there appeared a race of men fierce, brave, and warlike. These were the Caribs already mentioned, which were thus the second race discovered in the New World. These were found in the smaller Antilles and on the continent. It is not easy to say from whence they came. Their own tradition asserts that they came originally from Guiana, and this view at first sight appears probable. The Caribs were at one time very powerful in that country, and some words in their language closely resemble the language of the other Guianese tribes.

Many, however, think that they came originally from the neighbourhood of Darien and derived their name from Cape

Caribema. It appears that the Abayma Indians on the Pearl Coast were in former times very much molested by them, but as the Caribs were a marauding people capable of making long journeys by sea, this is not much to the point.

A third opinion which is gaining ground in the present day, is that they came originally from the north of Florida. Having long waged war with a neighbouring tribe there, they were at length received by them as confederates and had a territory assigned to them; but, quarrelling with their neighbours about religious matters, in which they are still very obstinate, they left the country, and put out to sea. They soon came to the West India Islands, and, being stronger, braver, and more warlike than the Arawack race which occupied them, they were able to effect settlements for themselves. Passing by the larger islands, where they were probably awed by superior numbers, they fell upon the smaller Antilles, slew the males, and took possession of their land and women. Whatever place the Caribs may have come from, there can be little doubt about their having slain the males in the smaller West India Islands and taken possession of their females. This appears from the fact that the women in the Caribee Islands spoke a language different from the men, and that the language of the females in the smaller islands closely resembled the Arawack language spoken in the larger islands, while that of the males bore little or no resemblance to it.

The language of the Caribs in the smaller Antilles differed slightly from the language spoken by the same race on the South American continent. This, however, was probably owing to the influence which other tribes exercised on their language. This may also account for the apparent analogy between the Carib language and that of some of the other tribes in British Guiana. It is, on the whole, somewhat improbable that a race like the Caribs could have issued from Guiana. Their courage, energy, and hardihood do not seem to be natural to these swamps. They are much more like what might be expected of the hardy sons of the north. Probably every portion of the human race has a tendency to degenerate on the wild coast of Guiana, and, though the Carib race improved for a time by mixing with other tribes, seemed to retain its native vigour, it has for some time been dwindling away. The sunny south is not its habitat.

Though it does not now admit of proof, it is very probable that all the Brazilio-Guarani tribes came from the north, though not at the same time. Of the tribes in British Guiana the Warraus and Macuri have probably been longer in the country than the Caribs, Accawoi, and Arawacks. The subject

is one of considerable difficulty, and the data from which we have to decide is very scanty. These tribes differ a good deal from one another in their language, characteristics, and habits, but not in their outward appearance or mode of living. The tribes have been frequently compared with one another, and are found to differ in language, in tattooing their faces, in the manner of building their huts, and in the animals which they consider unclean; but little can be inferred from these differences. Still, such things may sometimes help in an inquiry. In dealing with the subject, I would suggest that fac-similes of the tumehni, or rock-writing, be collected and compared with similar writing to be found in other parts of America, especially in the valley of the Mississippi. Though there is at present considerable doubt as to the origin of these writings, a comprehensive investigation of these things might throw some light on the subject. Such an inquiry would require special ability and culture, but tracings of these remains might be collected by people who could not investigate them, and in this way much time and labour would be spared.

These writings appear to be spread over a very large territory, and some curious facts are mentioned concerning them. The Rev. W. H. Brett, in his "Indian Tribes," states that they must extend over a long period of time. As some of them are very far up the rocks, the beds of the rivers must have become much deeper since they were executed, and therefore they must be of considerable antiquity. In one of them, however, he saw something like a Spanish galleon, and the people beside it expressing their joy at its arrival. He therefore thinks that it must have been executed after the arrival of the Spaniards.

Whatever may have been the origin of these writings, if they mean anything they resemble the writings of Mexico and North America more than the remains of Peru. Indeed, the Quippus, or cord-writing of Peru, was something very different.

In bringing this question before your Association, my main object is to call the attention of persons interested in such matters to the subject.

A discussion on the above papers then ensued, in which the PRESIDENT and others took part.

The following paper was taken as read:—

On some CRANIA *of the* ROUND BARROWS *of a* SECTION *of the* YORKSHIRE WOLDS. By J. R. MORTIMER, Esq.

IN this paper I beg to give some particulars of the finding of two extreme forms of skulls in round barrows, situated on a section of the Yorkshire Wolds, reaching from near Driffield on

the east to Aldro' on the west, and embracing an area of about 80 square miles, the barrows in which are not yet all examined, although they have been under examination for the last ten years. This section takes in a little of the low land, and includes the most elevated portion of the chalk wolds, where, at Wharram-Percy, Aldro', and Garrowby-hill top, it rises to an altitude of 700 to 820 feet above the sea. Here, as in the south and other parts of England, the long barrows are sparingly associated with the round barrows. Only one long barrow now exists, to my knowledge, in this section. It is similar to the few long barrows which are found in other parts of Yorkshire, and the unchambered long barrows in the south of England. Its length is about twice its breadth, with the long axis running east and west. Along each side of the whole length of this tumulus was a filled-in trench of considerable dimensions, which, as in all other true long barrows, does not pass round the ends. After a very careful opening, this mound yielded no interment; but in three places there was a crushed urn of a peculiar type, which might have accompanied interments that had finally disappeared.

The round barrows of *this* area are of two varieties: the one having been encircled, or nearly encircled, with a ditch and bank passing round its circumference, but which, in most cases, is now obliterated, whilst the other has no such enclosure.

I do not intend to enter into the relative age of the two ancient forms of sepulchres—the long barrows and the round barrows—my chief object being to give, as far as I am at present able, an account of the finding of a few of the crania of the men who contemporaneously occupied and possessed this portion of the Yorkshire Wolds during a long period in prehistoric times, and leave you to form conclusions of your own.

I take my examples from tumuli reaching from east to west of this section, and commence with two occupying the low land in Garton-Slack. The first tumulus is about one mile east of Craike Hill, and two and a half miles west from Driffield. It covered two oval graves in the centre. The fragmentary cranium (No. 1) found in this tumulus is dolichocephalic, and has a cephalic index of .72; it belonged to a much flexed interment resting on the floor of the grave marked "A" on the plan, on its back, with head to the south. A food vase accompanied it, and round its head were several minute flakes of dark flint. Over its feet, at about half the depth of the grave, was a small heap of burnt human bones. A femur measured 19½ inches, and is of great substance. The second skull is very different in form, and has a cephalic index of .85, is therefore strongly brachycephalic. The interment to which this cranium belonged occupied the bottom of the grave, "B," lying on its

right side, with the head to the west, both hands under the chin, and the knees pulled up. The two femora measured 17 inches each, and are of rather slender make. A crushed food vase lay near its head. Just above this interment lay the flexed remains of a child about three years old, and upon its feet was a heap of broken human bones.

Going westward to within a mile of Wetwang we come to another tumulus. The skull (No. 1) from this barrow has a cephalic index of .72. This interment lay on the floor of an elliptical grave, partly on its left side, with the head to the south-east and legs much doubled up. It was accompanied by a badly formed flint knife lying on the lumbar vertebræ, and a very fine drinking cup, of large size, stood close to its right shoulder. Its femur is 19 inches in length.

"C. 63." No. 1.

Skull No. 2 has a cephalic index of .94; consequently is brachycephalous to an extreme degree. It is from the same mound, and occupied the floor of the southern half of a quadrangular grave, contiguous to the northern side, from whence the long skull was taken. Except that it lay on its chest, it was in the same posture as the No. 1; the femur measured 17$\frac{1}{2}$ inches, and is of great substance. Close to the knees was a drinking cup, accompanied by three large flakes of black flint, a beautiful polished flint axe, and a bone pin 2$\frac{3}{8}$ inches long; also a flint knife was stuck point downwards, just about the right side of the pelvis, as if it had been worn in a garment passing round the loins.

On the floor of the northern side of this grave lay the greatly decayed remains of a small person, most likely a female. Its attitude differed from that of the two previous ones by being on

its right side, and having its head to the west. This body was also accompanied with worked flints, and a drinking cup lay close to the back portion of its greatly-decayed skull. Above this duplex interment, and mixed with the material filling the grave, were many broken human bones, belonging to several individuals, and having other appearances indicative of cruel rites. These interments occupied the centre of the mound, and were undoubtedly contemporaneous. Passing from these ancient dwellers in the valley to those on the hills, we find an equally great dissimilarity in their cranial forms. The skull marked T 98, G B, belonged to a primary interment beneath a tumulus on the "Wayrham Farm," about one mile west of "Pluckham." It has a cephalic index of .71. This interment lay on the bottom of an oval grave, on its right side, in the usual crouched position. In front of its chest stood a food vase, close to which was the

"C. 63." No. 2.

root end of a large antler of the red deer. A femur measures 18 inches, and is of great strength. Further interments, both by inhumation and cremation, and several urns were found in other parts of this barrow.

Another skull (No. 2, T 100) was obtained from a barrow situated about two miles S.W. of the last. It was procured from an interment lying with its head to the N.E. on the bottom of a large grave, and at full length, a position occupied by less than one per cent. of British burials. It has a cephalic index of .90, and the femur measured 19 inches. In the same grave a doubled-up interment lay above it, the cranium of which, as far as could *then* be made out from its crushed state, was of the long type. The two next examples are also from one tumulus, No. 104, standing close to the York Road side, on the very summit of

Garrowby Hill. The fine-featured cranium (No. 1) belonged to a skeleton which was lying about 16 inches down in the centre of a large grave, with its head to the south, and knees pulled up. It has a cephalic index of .75. The femur is 18 inches long. Near the head lay a flint-flake knife. No. 2 was 23 inches vertically beneath No. 1, and in the same posture. Its breadth index is .83. A femur measures 16 inches, and is of great substance. Close behind the head stood a food vase, and near the two bodies were a few animal and many dismembered and fractured human bones; whilst fully 2 feet below them, and on the floor of the grave, stood two beautiful earthen vessels, with what seemed to be some ribs of a cow lying near them. These urns and fractured bones indicate food deposited with the dead.

Passing, on the ridge of the wolds, five miles in a northern direction, we reach Aldro'—a place of great importance in British times—a locality thickly studded with tumuli, occupying the most prominent points and commanding extensive views stretching away right and left into the Vales of York and Pickering, and far in front to the more distant Moorland Hills. The tumulus from which the very extraordinary specimen (No. 3) was taken stands on the very summit of the north-western escarpment of the chalk wolds, half-a-mile north-east of Aldro' House, and is one of the most interesting mounds explored by us. It is to be regretted that half of this remarkable cranium has gone to decay, but fortunately enough remains to show the shape and that it possessed a very exceptionally low and contracted frontal region. Its small size, the low receding forehead, and the very prominent superciliary ridges are unequalled by any British skull known to the writer, and the cubic area of its brain cavity must have been relatively very small. Its cephalic index would be about .70. The body to which this skull belonged lay 2 feet down in the centre of a vast grave, crumpled up, with the head to the west. The root-end of the antler of a stag and a few other bones lay near its head. This grave was funnel-shaped, 15 feet in diameter at the top and 14 feet deep. It contained two food vases and the remains of no less than fifteen individuals of all ages. My tenth and last example is from a portion of a barrow standing on the brink of Birdsall Brow, about one and a-half mile to the north-east of the one last mentioned, the other portion having been carried away by a landslip at some remote period. Fortunately the central grave remained, and the body lay undisturbed, with its knees pulled up towards the chin and head to W.S.W. This very fine skull has a cephalic index of .79. Close to this body lay a smaller one, minus legs and pelvis, and with the skull cleft.

By preparing a tabular analysis of this small series of skulls from our circular tumuli, and comparing it with Dr. Thurnam's "Analysis of Skulls," obtained from the barrows of the south of England, we observe marked points of difference.

The ten skulls on my table are from seven circular tumuli, and are divided into two very opposite types. Five are brachycephalic to a great degree, having a mean cephalic index as high as .86; whilst the other half are dolichocephalic, with a mean index as low as .72. In the south of England Dr. Thurnam finds the round-barrow skulls to range from .74 to .89, and to afford a mean cephalic index of .81; and from the same neighbourhood he finds the unchambered long-barrow skulls to range from .63 to .75, and to give a mean index of .69. He also finds the crania from the chambered long barrows to range from .67 to .77, and to have a mean cephalic index of .71; and he adds that at the present day there is no people in Europe with skulls so long and so narrow. It is worthy of remark that Dr. Thurnam finds, in the main, his long barrows to contain long skulls, and his round barrows to contain round skulls; whilst in Yorkshire we find the circular tumuli to produce promiscuously these two extreme forms of crania; and though the long barrow in our section produced no human remains, the few explored long barrows of the adjoining neighbourhood have yielded, like the circular tumuli, both forms of crania, with many traces of burning and numerous semi-calcined human bones. Moreover, Dr. Thurnam gives the mean stature, derived from fifty-two measurements, as 5 feet 6 inches for the men with long skulls—or from the long barrows—and 5 feet 9 inches for those with round skulls, or from the round barrows.

My computation of the stature of these two types of men—the brachycephalic and the dolichocephalic—is the very reverse of his. My analysis shows the mean stature of the five examples possessing long skulls to be as much as 5 feet $9\frac{4}{5}$ inches, and the average stature of those five having round skulls to be 5 feet 5 inches only. The examples I have produced are believed to be, with probably one exception, males. The female element might have produced different results, and has been intentionally avoided.

From the knowledge obtained in procuring this interesting decade of skulls we have no proof of a period of high mental culture, but much evidence of *gross superstition and savagery*. Yet from the table of measurements it is obvious that our remote ancestors of this neighbourhood reached high on the standard of physical growth, and that the cubic areas of their cranial cavities, with one exception, show them to occupy a

high position in the scale of cerebral development. And, lastly, we here find no evidence of a period when men possessing either form of cranium were the sole denizens of the small area embraced by this paper, but that men then lived together amicably, possessing skulls varying in type as much as do the heads of the men of the same area now differ in form, we have ample proof.

Measurements of Ancient British Skulls from Barrows in the E. R. of Yorkshire.

Ten Skulls believed to be of Men.	Burial.	Grave.	Relics.	Long Skulls.			Round Skulls.		
Derivation of Skulls.				C Index.	Lngth. of Femur	Calc. Stature	C Index.	Lngth. of Femur	Calc. Stature
					Inchs.	Ins.		Ins.	Ins.
Garton Slack "C. 40."	1	A	Flint Flakes Food Vase	·72	19·5	72·3			
Garton Slack "C. 40."	2	B	Food Vase				·85	17	63
Garton Slack "C. 63."	1	B	Flint Knife Drinking Cup	·72	19	70·3			
Garton Slack "C. 63."	2	C	Flints Drinking Cup Bone Pin				·94	17·5	64·7
Wayrham "98."		B	Stag's Antler Vase	·71	18	66·5			
Calais Wold "100."	2		Bone Tool				·90	19	70·3
Garrowby Street "104"	1	A	Flint Knife	·75	18	66·6			
Garrowby Street "104."	2	A	Vase				·80	16	59·3
Aldro',	3		Antler and Bones	·70	19·2	71·3			
Birdsall Brow "65."	1	A	Flint				·79	18·2	67·7
				·72	18·7	69·5	·85	17·6	65

ANTHROPOLOGICAL MISCELLANEA.

The following EXTRACTS from the late Commodore GOODENOUGH'S JOURNAL* are of interest as describing the natives of Mallicollo and Vanikoro; skulls from which islands are described in Prof. Busk's paper, at page 200:—

1875—*July 29th.*—Stood in and steamed into South-west Bay (Mallicollo) at 11 a.m., finding a pretty regular bottom, and anchored in ten fathoms black sand. I went to a good village on the point, and found the people very friendly—many smeared with lime, and all dirty, but good-natured. They were glad to see us at their houses. One had a small bone of a man's leg hanging to his right ear as an ornament. I at once got some words, the people helping me, and seeming very intelligent about it. To my satisfaction I found two houses, which were seemingly public-houses, or dead-houses, certainly the former. At one a man laid down and mimicked going to sleep. Just inside a low door came the chief post of the house, and round this were figures of straw covered with clay in which the figure was moulded, showing the navel and nipples. At knees and elbows a face was moulded, the skull was there entire, with a moulded clay face. They were quite ready to part with these heads for a knife, and to allow any number of common skulls to be taken. I made a prize of some for Col. Fox, and got him one or two very good stone and shell adzes. All about were little figures, hammers for killing pigs, and other odds and ends of mummery. I saw two villages; all alike. I suppose each village contains eighty people or so; but we only saw men—no women or children, whom they repeatedly said were "sisi," which I take to mean no, or not there, or something equivalent. I saw a titi (woman's girdle) hanging in a house, and a fine mat in process of making, just as in Ambrym and Port Sandwich. The dress of the men is also the same. The dancing-ground (as at Port Sandwich) has lallies and figures round it; the lallies very large, and with different faces from those at Port Sandwich—flatter. . . .

August 10th.—Saw Vanikoro (Santa Cruz group) at daylight. . . . . I took Perry in the galley in p.m., and round Direction Island, finding a landing, as I expected. The people all escaped to the main across the joining reef, poor creatures, laden with house-

* "Memoir and Journal of the late Commodore Goodenough." Henry S. King & Co. London, 1876.

hold goods apparently. I landed after calling "O mai" repeatedly, and looked into several of the six or eight houses. One, which was oblong, and had side walls 4 feet high, was evidently a public-house. The others were perhaps not quite so high, and had a semicircular end, indifferently pointed, but generally inshore, the door being beachwards. This end was generally cut off by a wooden sill, 4 or 6 inches high. In the centre of the apse were eight to twelve black stones, some little columns of basalt, some flat pieces, and some large round pebbles. Some big whorls lay as ornaments. On the left as one faced this little assemblage was always a little cane bench. I couldn't think what this meant, till in one hut I found a child's skull upon the stool, well smeared with yellow earth. Besides a few old bags and mats, a bow, and the hafts of adzes, there was absolutely nothing in the village. Everything had been removed. At quite one end, and at the last of all the houses, was a roof without walls, but with side posts, and under it a quantity of skulls around some upright stones, but no bones of any sort, and no lower jaws. I conclude from all this that this is again a worship of ancestors, household and tribal, and that each house has its own Penates. There are no marks of any sort upon the stones. A net, by the way, and a few girdles, like those of the Mallicollans, were left in the huts. . . . .

August 11*th*.— . . . . I took a cutter and whaler away at nine, and ran inside the reef to a village called Mumbola in the chart, and by the people now, and then on to Payon and Neuna, and so out to the ship by 5.30 p.m. . . . . As we got near Mumbola we saw a canoe, and she beckoned us onward, so both boats went in. A man came out to the cutter, so I got hold of him and gave him a sulu, and got him into the boat. He slapped his breast, opened his mouth, which was full of betel nut (quite crammed) and called himself Aliki, chief. The present of a sulu was opportune. He was delighted, and waved it to his fellows on shore, who were quite ready now to come and talk. His teeth were black with chewing betel, and he kept on taking more, tearing the nut, snatching the leaves and lime, and devouring in haste like a beast of prey. These fellows had bows of six feet, and arrows of four, well ornamented. My friend, who slapped himself, and called me Aliki, again took me by the hand, and led me to the public-house, 30 feet by 20, with side walls and posts carved with fish, of which I brought away a couple. We then began to bargain. I got a paddle and some very pretty, neat mats. Perry got some words, and I a few, but it was not easy, as about twenty-five fellows were round us, and all talked together, bargaining, &c. An unhappy fellow, covered with scales of a sort of ringworm, was the most intelligent. Some of these people were much lighter than others, and there came down one light-coloured man, with cropped hair, famously got up with earrings, bracelets of beads, armlets, leglets. A most picturesque figure, but as wild as a hawk. He hovered outside the circle first, then came near. I held out my hand; he thought I wanted his girdle, and it was long before I

could make him understand that shaking hands meant a friendly act. I offered him a small hatchet for his earrings, which he gave me: a bunch of tortoiseshell rings and a ring of shell in each. The dress is a bark girdle with four or five turns of a black rattan on it. A piece of tapa, thick and beaten out of the vau, makes the maro. It was altogether a friendly visit, and both sides were pleased. They were ready to part with what they had, and were not suspicious in handing it over. We saw no sign of a woman, save the fine mats, which I suppose they had made. Some ship's canvas was in one hut, unused, and therefore spare; and a sheet of copper—thick, heavy, red copper—was used as a door-sill to a hut. I am sorry I did not bring it away. It was too thick for sheathing, and had, moreover, never been used. Another sheet, but sheathing, and yellow metal, and torn from a vessel's side, was used in like manner at another house.

I only went into one house or two, and in these were a stone or two as rudimentary Penates—round stones; and in one a skull was laid carefully on a board over it. We parted "with mutual expressions of goodwill," as they would say, but which one can't say here, as the form, where there is any form at all, is at most, "You stay! I go!"* I imagine they said something of this sort. We went on, eating our dinner, and ran down to Payon, near where the "Sandfly" was insulted by a skull being laid on a piece of tapa on a point. There is but one house, and that a poor one. There was a skull—perhaps the very one—on a board over the place where the household god is kept,—the black stone. The people of this village, probably 16 or 20, including women and children, had all vanished (as they did to-day) up the stream in a canoe. After looking about, and leaving a sulu on a stick, we went on, seeing no hut, or canoe, or sign of inhabitants, till past the extreme west point, where were two houses, and a hut for dead men's skulls, abandoned, as I suppose, six or eight months ago. And this is all. The whole of Vanikoro, at a greater rate than this, cannot have more than six hundred people on it of any sort. Where are they? I imagine excess in betel nut, and excess in other ways, and child murder, and disease to have killed them all.

OFF SANTA CRUZ, Thursday, *Aug.* 12*th*, 1875.

I am going on shore to the spot where the "Sandfly" was last year, to see if I can't make friends with the unfortunates, who seem most friendly and anxious to be civil, by coming out to us in canoes, and looking as if they wished to please.

Tuesday, 17*th*.—But I was disappointed. I take it they are an untractable people, without much respect for authority or for each other. I wrote the above on Thursday, thinking that in the very remote possibility of anything occurring you should have my last word. I went on shore with two boats, but as I got near the shore I saw a number of canoes hastening to the place at which I was going to land, so made signal for a third to follow. As we drew

* The only Fijian form for "good bye."

in to the shore, canoes came about us, eager, vociferous, and friendly, and with a rather villainous look. They are big compared to some other islanders about here, are not at all dark, some being very light, and with very light hair; but betel-nut chewing is universal. All mouths are full of a chocolate and black masticated mass, and teeth are as black as jet, with great lumps of the lime with which they chew the betel adhering as "tartar" to their teeth.

The following EXTRACT is from a REPORT on the ISLAND of TRISTAN D'ACUNHA, presented to Parliament in 1876:

The Tristan d'Acunha group was originally discovered by the Portuguese (and named after the commander of the expedition) in 1506. It was further explored and described by the Dutch in 1643, and the French in 1767. From 1790 to 1811 the large island appears to have been occupied by American sealers. They appeared to have subsequently abandoned it; for formal possession was taken in the name of the British Government by a small military force from the Cape of Good Hope, as an official notice of 30th March, 1817, announced the occupation. The object in occupying the island by a small detachment of artillery was the confinement of Napoleon Bonaparte at the time in St. Helena. At his death, in 1821, the detachment was withdrawn; but one of the party, Corporal Glass, and two seamen of the St. Helena naval squadron (which latter occasionally visited the island) obtained leave to remain. Glass became the recognised chief. He raised a large family; so also the two man-of-war's men. This and the immigration of a few whaling men, who married the daughters of the above, have brought about the present population. The group has been occasionally visited since 1821; the most notable of these visits was that made by the Duke of Edinburgh, in her Majesty's ship "Galatea," in August, 1867.

Commander N. Digby, R.N., on Jan. 8th, 1875, reported as follows:—

There are fourteen families on the island, eighty-five persons in all. They subsist on the produce of their farms, on which they rear cattle, sheep, pigs, and poultry, in considerable numbers, and cultivate potatoes and other vegetables. The sea abounds with fish, and the neighbouring islands are visited for seals. There is no lack of the necessaries of life, but as there is no regular communication with the rest of the world, they are dependent on the casual visits of vessels for clothing and luxuries. Want of flour is their most serious inconvenience, and wheat will not grow. The number of vessels calling there has considerably diminished since the American war, before which the island was frequently visited by American whalers, which are now but seldom seen. Peter Green, a native of Rotterdam, who was wrecked on the island about forty years ago, is the person who appears to have the greatest influence among the people, who are nominally on a footing of equality, and

I believe it is due to his superior intelligence, aided by the advantage he possesses in point of age, that order is maintained. Green considers himself under the jurisdiction of Cape Town, and bases his assumption on the fact that, some years ago, Bishop Gray, of Cape Town, visited them, and made them sign a document acknowledging themselves in his diocese. Fresh provisions can always be obtained, of good quality, and in any quantity, and the boats are rarely prevented by stress of weather from communicating.

On October 15th, 1875, Captain G. S. Bosanquet, R.N., made the following report on his visit to the island on the 12th and 13th October :—

The report made by Commander Digby, of Her Majesty's ship "Sappho," in January, represented accurately the state of this minute colony, and I have little of any value to add to it. I enclose a census of the population which I caused to be taken, from which it will be seen that there are only fifteen males of the age of twenty-one years and upwards. These represent the physical force, and I think I may also say the intellectual, of this somewhat unsophisticated community, although I should not venture to assert this (superiority of the males) of any more highly civilised one.

The families are connected by the ties of marriage, and their interests are identical. They have certain rules of their own, and the present senior male member of the community, Peter Green, is made their referee if necessary. This position has been conceded to him, not alone from his superiority in years, but also from having greater force of character, being a European, than the rest of the community, who are half-castes, and of more plastic materials.

There are two exceptions, one an Englishman, who came here some years ago from the Cape, and married, who is now desirous of leaving with his family, and going to New Zealand, or first to the Cape of Good Hope, and the other an American, who settled here of his own choice in 1845. The first of these, Joseph Beetham, I was willing to have removed to the Cape, as he evidently was dissatisfied, and is probably a disturbing element in the settlement; unfortunately, the principal female member of the family was not in a condition to make a hasty move.

It will be well, perhaps, to give a general account of the condition of the island, although, probably, Her Majesty's Government is well informed of all the facts of the case. The island, imposing, but gloomy and forbidding when seen from a distance, is volcanic, rising precipitously in almost all quarters from the sea in a continuous and magnificent chain of heights of from about 2,500 to 3,000 feet, furrowed by water-courses and ravines, and clothed with scrub and a specimen of dwarf pine; within this first barrier rises the great peak, said to be 7,640 feet high. On the north-west extreme there is a considerable tract of fertile undulating land, principally pasture, which slopes gradually to the low cliffs on the margin of the sea. The settlement is on the northern extreme of

this tract, which is not the most eligible in point of shelter, but is convenient on account of the anchorage near by.

In the immediate vicinity of the settlement are several hundreds of acres of pasture land, on which feed numerous draught cattle, as well as sheep and pigs. The soil is rich here, but on account of the extraordinary violence of the winds at certain times it is almost impossible to grow anything, and many cattle at times have been killed by the actual force of the wind. Two years ago more than 100 milch cows were so lost during a violent north-easter. This part was also at one time covered with trees, as far as I can ascertain, of the same species as still exists on the heights, a sort of dwarf pine, low and twisted in their stems; these were entirely destroyed some years ago by a species of louse or beetle which seized upon the trunks.

About two miles south-west of the settlement there is a sloping grass plain of several thousand acres in extent, which is used in common as the grazing ground for all the cattle of the community, although the cattle themselves are the property of different owners. Small portions of this tract are fenced off for the cultivation of vegetables, and sheltered spots, formed by depressions in the ground, are planted with fruit-trees. Any quantity of the land could be brought under cultivation, but there is no means of disposing of the produce, as they did formerly, when numerous whalers frequented the sea around the island. The cattle amount now to about 400 head, since the severe loss mentioned above. There are many more sheep, and numerous pigs. The inhabitants live on their stock and other produce of the farms. Unfortunately for them, they have given up the cultivation of corn, which at one time grew abundantly, the reason being that the crops were destroyed by mice, which now infest the island, and no efficient steps have been taken to overcome this plague. In consequence of this the community are dependent for flour on ships calling. There is an abundance of good fish, such as rock cod, sea perch, cavalli, and great numbers were caught from the ship during our stay. At one time the island was frequented by seals and goats, but the former always migrate from the places where man settles, and the latter suddenly disappeared. Some time ago a number of goats were brought over from Inaccessible Island, where they are numerous, but these also disappeared as the others, and no trace of them has been discovered.

Within a few hundred yards of the shore a floating belt of kelp sea-weed, of considerable breadth, moored to the bottom, encircles the island. This is used for manure. Sometimes it is cut from boats, and sometimes great quantities are thrown upon the shore by the storms. Expeditions from the island are made at times to Inaccessible Island, for the purpose of procuring seals and sea elephants —the latter for the sake of the oil—also for goats and wild pigs.

Commander Digby states that the emigration of some of the community will be necessary as the population increases. I cannot see the necessity for this, although, for the comfort of the community,

it may be best. I inspected the land, and made close inquiries, and there is land enough and stock enough for a very much larger number of people. I have little doubt that the peculiar enjoyment and content of the original few settlers has now to a great extent diminished. It depended on ample space, and abundance, and undisturbed possession; also this and the neighbouring islands and sea abounded with seals, sea elephants, and wild goats, which were easily taken, and in very large numbers; and there was an extensive traffic for the few with the whale ships which then constantly communicated. With the increase of the inhabitants, however, their unbounded freedom was curtailed, as there were more people who had claims to be respected; there were more mouths to feed, and more hands to take part in the seal-hunting, &c., and to share in the traffic ensuing therefrom. The wild animals just mentioned became more scarce, the supply of seal-skin and sea elephant oil falling off, ships ceased almost entirely to visit the island.

The present community are naturally averse from any influx of settlers, as it would increase the drawback mentioned, and steadily reduce what seems to me to be the only attraction to the place, viz., space, and plenty on sea and land, all at their own disposal, with few to participate, and those mostly united by family ties. There is also another and an increasing difficulty—that of obtaining certain necessaries, such as clothing, blankets, flour, and groceries. These used to be obtained by barter from the whale ships, which also purchased the skins, oil, &c., and obtained supplies of beef and vegetables; but as the whale ships scarcely ever now visit the island, the people are in a worse position than formerly, and poorer, as they have no incentive to raise a larger quantity of food, there being no longer a demand for it. Their possession of a small vessel to carry the produce and cattle to the Cape could be of no use, as there is no safe anchorage. Firewood is procured from the scrub and small trees which grow on the heights.

The Governor of the Cape of Good Hope makes mention in his letter to the Colonial Office of the alleged inhospitable treatment by the islanders of people resorting there for fishing and other purposes. I do not think the community deserve this. They are, doubtless, anxious on the score of others coming there, simply on account of the difficulty of keeping themselves even indifferently supplied with certain necessaries, such as clothing and flour, and luxuries, such as tea, sugar, and tobacco; but many ships have been wrecked or abandoned off this island, and the crews have been well cared for by the community, who have received little or no return for it; and I may here remark that, from the statements of one or two of these people as to some of the ships burnt, wrecked, or abandoned near this island, although it does not appear to have occurred to them that a suspicion was unavoidable that this neighbourhood was taken advantage of for the iniquitous purpose of destroying ships when the crew could be saved, where no judicial investigation could take place, and from which evidence could not be easily procured.

Peter Green informed me that there is land as extensive and equally good on the south side of the island, and much the same sort of anchorage, but the wind commonly prevailing, which is westerly, blows on to the shore. It is possible to get round to it on foot, but it is difficult, and cattle could not be transferred there by land without a track being made. Education is doubtless at a low ebb. Some few children are taught by Peter Green and his wife, and some others by Mrs. Frances Cotton. Most of the people can read, but many cannot write. There is a fair supply of Bibles, and some school-books, but an additional supply of both is needed, as well as of slates, &c.

The community could not find a salary for a schoolmaster, but they would be ready to supply him with food. A clergyman or Scripture reader (the Rev. William F. Taylor) resided in the island when it was under the see of Cape Town, from 1850 to 1856. When he left, he induced more than half the inhabitants (forty-five in number) to leave with him for the Cape. I understand that he was paid by some society or individual in England, but the community supplied him with food.

Several of the present islanders have been away at times whaling, or on visits to the Cape Colony or St. Helena; one or two of the women also have been in service at the former place, but, finding the wages not sufficiently remunerative, returned to the island. As I have previously stated, there is no means of establishing a communication by private vessels, as they have almost entirely ceased to touch there; even when these visits were frequent, they were made almost entirely by outward-bound ships, whether whalers or others; the former were generally *en route* for New Zealand, but none touched at the Cape. The only dependable communication must be by men-of-war, as mentioned by me in the suggestions for the future rules and laws.

The chaplain of this ship, the Rev. John Pitman, baptised twenty-five children, one of which was born the night after our arrival. The remaining unmarried daughter of Peter Green, and the only young lady of sufficient age at this time, was married to one of the community by him also. I had the pleasure of witnessing the ceremony with several other officers of this ship, and afterwards we were entertained at a repast by our host, the bride's father, in a most sumptuous manner. All the community took part at the feast, and we were all astonished, not only at the lavish abundance, but at the excellence of the *cuisine*.

The arrival of a ship is the signal for a holiday, as in this instance, and I was much struck by the cleanliness and neat appearance of all; but the most pleasing feature was the quiet and unaffectedly good manners of the community, perhaps more particularly amongst the women and younger ones.

I assembled the elders of the community to confer with, and informed them of the object of my visit and the views of Her Majesty's Government. They did not apparently see the necessity for any rules of government, but they desired that there should be

some constituted authority in order to prevent the occurrence of such an infliction as occurred during the late American war, when the "Shenandoah" landed some forty prisoners without providing for them, and when the captain of the ship was remonstrated with, and told that the island was under the jurisdiction of Cape Town, he desired them to show him some document to prove it. The unanimous desire and first requirement of the people is for a resident minister, and if such cannot be had, for a schoolmaster or Scripture reader. They could not provide him with an adequate salary, as they are too poor, more so than formerly, but they would furnish him with food, as they did to the Rev. W. Taylor. If such a minister could be provided, having also sufficient intelligence and energy as to direct the inhabitants in the improvement of their land, by planting, raising stone walls to shelter the crops, and reintroduce the cultivation of corn, protecting their crops by a judicious system of deep overhanging trenches, or any other means, to guard them from the ravages of mice, it would be a very great benefit to them.

NEW ZEALAND HEAVEN AND EARTH MYTH.

THE following version of the New Zealand myth of the creation has been communicated by Mr. J. F. H. WOHLERS:—

The name of the oldest god was Tangaroa. He was the uncle of Heaven (Rangi) and the first husband of the Earth, whose personal name as a woman was Papatuanuku. Once, when Tangaroa was absent, Heaven took his wife, the Earth. When Tangaroa came back Heaven had to meet him in a duel for the offence, and was by him wounded and lamed for ever. Tangaroa, having had satisfaction, left the Earth, and she was thenceforth Heaven's wife. The latter being lamed, could not stand upright. Heaven was then laying flat on the earth, and it was close and dark on the same; no wind could blow, no light could shine. Still Heaven and Earth brought forth many children; most of them were cripples, but a few had sound limbs. Among the latter was Tane, the most conspicuous. The children found the close darkness inconvenient, and had a consultation what to do to gain light and liberty. Some proposed to kill their father, Heaven, and to be content with one parent, their mother, Earth. Others advised to lift Heaven up high above, and there let him remain a stranger to them. This was agreed to. After much exertion, Heaven was lifted and carried up by his children, and fastened by Tane. When Tane came down again he looked up to his father, but the old man looked dark and sad. So Tane went and fetched ornaments, with which he gave Heaven a bright polish. Then, when he came down again, and looked up, he thought his father was not yet ornamented as he ought to be, so he got more ornaments, of which he drew the milky way and set the constellations. Then he came down and looked at wha the had made, and it was good. Now Tane looked at his mother, the

Earth, who was still void of ornaments. So he raised some of her crippled children, the trees. First he put their legs (branches) to the ground and their heads (stumps and roots) up. Then he went aside and looked at them; but the trees did not please him in that position. So he took them up again, and put the heads to the ground, and the legs (branches) up. Then he went aside and looked at what he had made, and it was good. Though Heaven and Earth have been parted, yet their love to each other continues. Her sighs may be seen ascending from her bosom, the wooded hills, in vapoury mist toward Heaven, and Heaven weeps down his tears upon her, the dew drops. Tane—the name signifies man, or male—had now leisure to think of himself. He wandered about by the springs of water, in the woods, among birds, and sought a wife meet for him, but found none. At last he turned to his mother, the Earth, and she advised him to take Hinehaone (maid formed out of ground). With her he had one daughter, named Hineatauira (maid of the bright morning sky). When the daughter was grown up she became Tane's wife, but did not know that he was her father. They had some children, whose names seem to indicate decay and death. Once, when Tane was absent on a visit to his elder brother Rehua, who lived in the tenth stratum of the heavens, Hineatauira asked her mother-in-law, the Earth, "Where is my husband?" The mother-in-law answered, "What! Thy husband! He is thy father." When she had learned this she was so overcome with shame, that she took leave of her mother-in-law and went down into the nether world. When Tane came back and asked for his wife, his mother told him that she was gone to the lower world, but had left word that Tane was to stay and to bring up their children. Tane now went himself to that world of darkness to bring up again his wife. He came to a house and asked toward the gable of that house, but received no answer. Ashamed and dejected, he went round the house, and then a voice inside the house said, "Tane, where art thou going?" "I follow our sister," he answered. Then the voice said,

"Go back, Tane, to the world of light,
To educate our fruit.
Leave me in the world of night,
To draw down our fruit."

Nicobar Islanders.